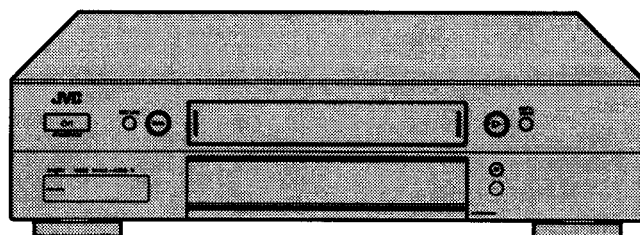
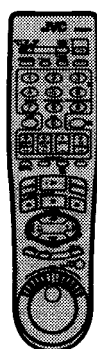


JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S9500E/EH



SHOWVIEW

TIME SCAN

Hi-Fi S-VHS

625

SPECIFICATIONS

GENERAL

Power requirement	: AC 220 – 240 V~, 50/60 Hz
Power consumption	
Power on	: 26 W
Power off	: 5.5 W
Power save (HR-S9500E only)	: 3 W
Temperature	
Operating	: 5°C to 40°C
Storage	: -20°C to 60°C
Operating position	: Horizontal only
Dimensions (WxHxD)	: 437 x 109 x 339 mm
Weight	: 5.0 kg
Format	: S-VHS/VHS PAL standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal, 625 lines 50 fields
Recording system	: DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 250 lines (VHS) 400 lines (S-VHS)
Frequency range	: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)

Input/Output

: 21-pin scart connectors :	
IN/OUT x 1, IN/DECODER x 1	
RCA connectors:	
VIDEO IN x 1, AUDIO IN x 1, AUDIO	
OUT x 1	
S-Video connectors:	
IN x 1, OUT x 1	

TUNER/TIMER

TV channel storage	
capacity	: 99 positions (+AUX position)
Tuning system	: Frequency synthesized tuner
Channel coverage	: VHF 47 – 89/104 – 300/ 302 – 470MHz UHF 470 – 862MHz
Aerial output	: UHF channels 22 – 69 (Adjustable)
Memory backup time	: Approx. 60 min.

ACCESSORIES

Provided accessories	: RF cable, Infrared remote control unit, "R6" battery x 2, S-Video cable, Connector cover (for front panel connectors)
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*Specifications shown are for SP mode unless otherwise specified.
E. & O.E. Design and specifications subject to change without notice.*

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The following table lists the differing points between Models (HR-S9500E and HR-S9500EH) in this series.

	HR-S9500E	HR-S9500EH
POWER SAVE MODE	USED	NOT USED
STEREO DECODER	A2	NICAM/A2

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the $\triangle$ symbol and shaded (■) parts are critical for safety.
Replace only with specified part numbers.

Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
Caution for continued protection against fire hazard.
Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads

5. Use specified insulating materials for hazardous live parts.
Note especially:
1) Insulation Tape 3) Spacers 5) Barrier
2) PVC tubing 4) Insulation sheets for transistors

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

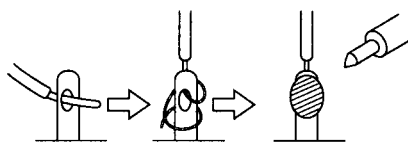


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

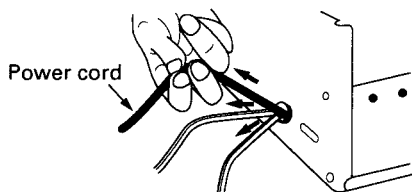


Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector

In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

1) **Connector part number** : E03830-001

2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.

3) **Replacement procedure**

(1) Remove the old connector by cutting the wires at a point close to the connector.

Important : Do not reuse a connector (discard it).



Fig.3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

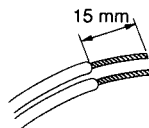


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

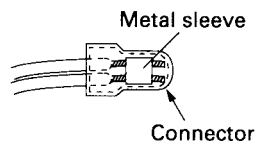


Fig.5

(4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

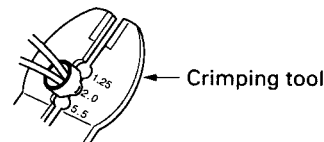


Fig.6

(5) Check the four points noted in Fig.7.

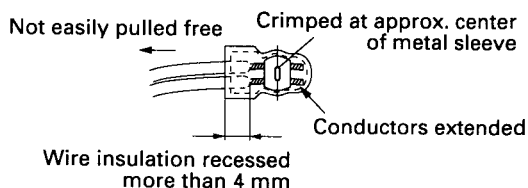


Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

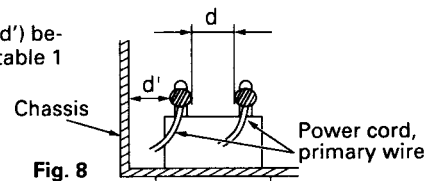


Fig. 8

4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method: (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

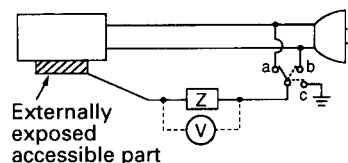


Fig. 9

5. Grounding (Class I model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

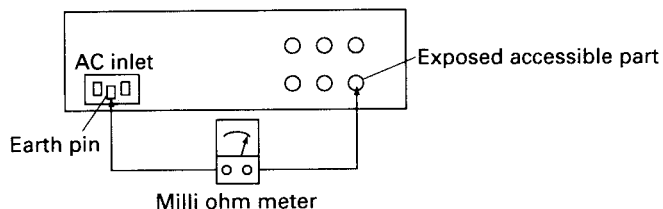


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	$Z \leq 0.1 \text{ ohm}$
Europe & Australia	$Z \leq 0.5 \text{ ohm}$

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	$R \geq 1 \text{ M}\Omega/500 \text{ V DC}$	AC 1 kV 1 minute	$d, d' \geq 3 \text{ mm}$
100 to 240 V			AC 1.5 kV 1 minute	$d, d' \geq 4 \text{ mm}$
110 to 130 V	USA & Canada	—	AC 1 kV 1 minute	$d, d' \geq 3.2 \text{ mm}$
110 to 130 V	Europe & Australia	$R \geq 10 \text{ M}\Omega/500 \text{ V DC}$	AC 3 kV 1 minute (Class II)	$d \geq 4 \text{ mm}$
200 to 240 V			AC 1.5 kV 1 minute (Class I)	$d' \geq 8 \text{ mm (Power cord)}$ $d' \geq 6 \text{ mm (Primary wire)}$

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	$1 \text{ k}\Omega$	$i \leq 1 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	USA & Canada	$0.15 \mu\text{F}$ and $1.5 \text{ k}\Omega$	$i \leq 0.5 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	Europe & Australia	$2 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Antenna earth terminals
220 to 240 V		$50 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

Safety Precautions

The rating plate and the safety caution are on the rear of the unit.

WARNING: DANGEROUS VOLTAGE INSIDE

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the mains outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the mains outlet prior to connecting or disconnecting any signal lead or aerial.

WARNING

There are two different types of SECAM colour systems: SECAM-L, used in FRANCE (also called SECAM-West), and SECAM-B, used in Eastern European countries (also called SECAM-East).

1. This recorder can also receive SECAM-B colour television signals for recording and playback.
2. Recordings made of SECAM-B television signals produce monochrome pictures if played back on a video recorder of SECAM-L standard, or do not produce normal colour pictures if played back on a PAL video recorder with SECAM-B system incorporated (even if the TV set is SECAM-compatible).
3. SECAM-L prerecorded cassettes or recordings made with a SECAM-L video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used for the SECAM-L standard. Use a SECAM-L recorder to record SECAM-L signals.

IMPORTANT

- Please read the various precautions on page 2 and 3 before installing or operating the recorder.
- It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable programme and in any literary, dramatic, musical, or artistic work embodied therein.

INSTRUCTIONS

For Italy:

"It is declared that this product, brand JVC, conforms to the Ministry Decree n. 548 of 28 Aug.'95 published in the Official Gazette of the Italian Republic n. 301 of 28 Dec.'95"

The STANDBY/ON ϕ /I button does not completely shut off mains power from the unit, but switches operating current on and off. " ϕ " shows electrical power standby and " I " shows ON.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

Failure to heed the following precautions may result in damage to the recorder, remote control or video cassette.

1. DO NOT place the recorder ...

- ... in an environment prone to extreme temperatures or humidity.
- ... in direct sunlight.
- ... in a dusty environment.
- ... in an environment where strong magnetic fields are generated.
- ... on a surface that is unstable or subject to vibration.

2. DO NOT block the recorder's ventilation openings.

3. DO NOT place heavy objects on the recorder or remote control.

4. DO NOT place anything which might spill on top of the recorder or remote control.

5. AVOID violent shocks to the recorder during transport.

MOISTURE CONDENSATION

Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions—just as water droplets form in the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder turned on for a few hours to let the moisture dry.

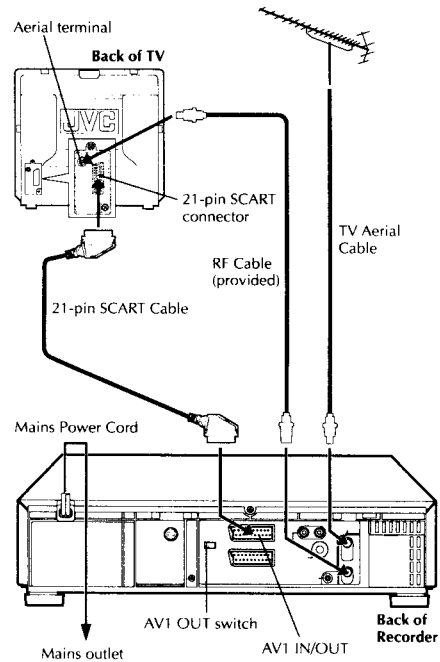
ABOUT HEAD CLEANING

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Be sure to contact your nearest JVC dealer if such troubles occur.



- Cassettes marked "S-VHS" and "VHS" can be used with this video cassette recorder. However, S-VHS recordings are possible only with cassettes marked "S-VHS".
- ShowView is a trademark of Gemstar Development Corporation. The ShowView system is manufactured under licence from Gemstar Development Corporation.
- Certain audio features of this product manufactured under a license from Desper Products, Inc. Spatializer® is a trademark owned by Desper Products, Inc.

Basic Connections



Make AV connection if your TV has a 21-pin AV input connector (SCART) in order to reduce the possibility of interference. And if you are using a stereo TV, you will need this cable in order to enjoy stereo playback of videotapes.

AV1 OUTPUT SIGNAL SELECTION FOR AV CONNECTION

The AV1 IN/OUT connector accepts only a composite signal (regular video signal), but can deliver either a composite video signal or a Y/C signal (a signal in which the luminance and chrominance signals are separated) according to the setting of the rear panel **AV1 OUT** switch.

- If your TV's 21-pin AV input connector (SCART) is compatible only with the regular video signal, set this switch to **COMP**.
- If your TV's 21-pin AV input connector (SCART) is compatible with the Y/C signal, set this switch to **Y/C**. You can obtain high-quality S-VHS pictures.

NOTES:

- Set your TV to the **VIDEO** (or **AV**), **Y/C**, or **RGB** mode according to the type of your TV's SCART connector.
- For switching the TV's mode, refer to the instruction manual of your television.
- To obtain high-quality S-VHS pictures, you can also use the **S-VIDEO CONNECTION** described on page 5.

It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

1 CHECK CONTENTS

Make sure the package contains all of the accessories listed in "Specifications" (pg. 66).

2 SITUATE RECORDER

Place the recorder on a stable, horizontal surface.

3 CONNECT RECORDER TO TV

The connection method you use depends on the type of TV you have.

RF CONNECTION

- To Connect To A TV With **NO** AV Input Terminals . . .
 - Disconnect the TV aerial cable from the TV.
 - Connect the TV aerial cable to the **ANT. IN** jack on the rear panel of the recorder.
 - Connect the provided RF cable between the **RF OUT** jack on the rear panel of the recorder and the TV's aerial terminal.

AV CONNECTION

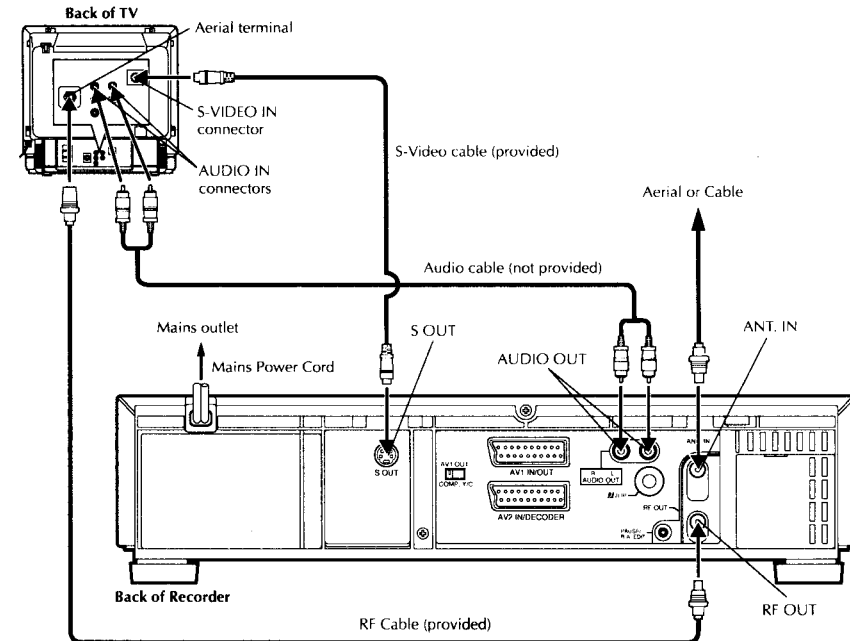
- To Connect To A TV With **AV** Input Terminals . . .
 - Connect the aerial, recorder and TV as per "RF CONNECTION".
 - Connect an optional SCART cable between the **AV1 IN/OUT** socket on the rear panel of the recorder and the TV's 21-pin SCART connector.
 - Set the **AV1 OUT** switch to the appropriate position. See "AV1 OUTPUT SIGNAL SELECTION FOR AV CONNECTION" below.

4 CONNECT RECORDER TO MAINS

Plug the end of the mains power cord into a mains outlet.

After you plug the mains power cord into a mains outlet, the Country Set display appears on the TV screen and/or on the recorder's front display panel when the **1/1** button on the recorder/remote control is pressed for the first time to power on the recorder; go to page 6 to perform Auto Set Up.

S-VIDEO Connection



- To Connect To A TV With **S-VIDEO/AUDIO IN** Connectors . . .

1 CONNECT RECORDER TO TV

- Connect the aerial, recorder and TV as per "RF CONNECTION" (pg. 4).
- Connect the recorder's **S OUT** connector to the TV's **S-VIDEO IN** connector.
- Connect the recorder's **AUDIO OUT** connectors to the TV's **AUDIO IN** connectors.

2 CONNECT RECORDER TO MAINS

Plug the end of the mains power cord into a mains outlet.

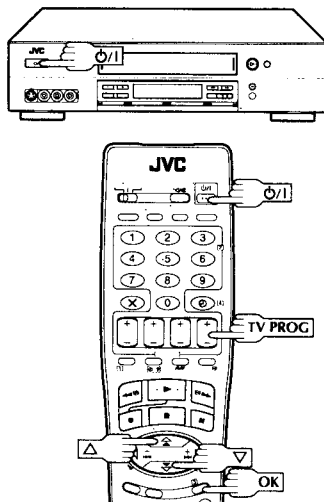
After you plug the mains power cord into a mains outlet, the Country Set display appears on the TV screen and/or on the recorder's front display panel when the **1/1** button on the recorder/remote control is pressed for the first time to power on the recorder; go to page 6 to perform Auto Set Up.

NOTES:

- You can obtain high-quality S-VHS pictures.
- If your television is not stereo-capable, use the recorder's **AUDIO OUT** connectors to connect to an audio amplifier for Hi-Fi stereo sound reproduction. (pg. 48)
- To operate the recorder with your TV using the **S-VIDEO** connection, set your TV to the **VIDEO** (or **AV**) mode.
- For switching the TV's mode, refer to the instruction manual of your television.

Auto Set Up

Auto Channel Set/Auto Clock Set/Auto Guide Program Number Set/Auto Video Channel Set



International Telephone Country Code

SUISSE	: 41	SUOMI	: 358
ITALIA	: 39	PORTUGAL	: 351
ESPAÑA	: 34	DEUTSCHLAND	: 49
BELGIUM	: 32	NORGE	: 47
NEDERLAND	: 31	SVERIGE	: 46
GREECE	: 30	DANMARK	: 45
OTHERS	: --	ÖSTERREICH	: 43

ATTENTION

Once you have performed Auto Set Up, even if the recorder's memory backup has expired, all the stored stations and their Guide Program numbers remain in the recorder's memory and the recorder will not perform Auto Set Up again. You only need to set the clock. (☞ pg. 58)

If you have moved to a different area, perform each setting as required.

- Video Channel setting (for RF connection users) ☞ pg. 49
- Tuner setting ☞ pg. 50
- Clock setting ☞ pg. 58

If a new station starts broadcasting in your area, perform tuner setting (☞ pg. 50) and, if necessary, video channel setting (☞ pg. 49).

When the **PHOTO** button on the recorder/remote control is pressed for the first time to power on the recorder after you plug the mains power cord into a mains outlet, the Country Set display will appear on the TV screen and the recorder's front display panel. By simply selecting your country*, the Auto Set Up function sets the tuner channels, clock, Guide Program numbers and video channel** automatically.

* If you live in Belgium (BELGIUM) or Switzerland (SUISSE), you also need to select your area.

** Useful if you have connected the video recorder to your TV via RF connection (☞ pg. 4). Video Channel (RF output channel) is the channel on which your TV receives picture and sound signals from the video recorder through the RF cable.

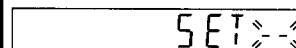
You can refer to the front display panel and/or the on-screen display to perform this procedure.

Before starting, make sure of the following:

- The TV aerial cable should be connected to the recorder.
- The recorder's mains power cord should be connected to a mains outlet.
- If you want to use the on-screen display, the TV should be set to its AV mode (with AV or S-VIDEO connection ☞ pg. 4 or 5) or UHF channel 36 (with RF connection ☞ pg. 4).

1 TURN ON THE RECORDER

Press **PHOTO** on the recorder or remote control. The Country Set display appears on the front display panel and/or on the screen.



NOTE:

If you have connected your TV to the recorder with RF connection and the on-screen display appearing on UHF channel 36 looks distorted, perform this procedure referring to the front display panel.



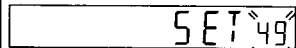
2 SELECT COUNTRY

If you are referring to the front display panel

Press **Δ** to select your international telephone country code of your country referring to the chart in the left column.

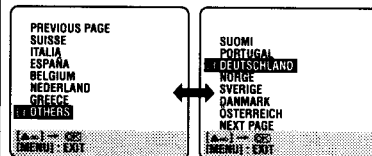
- If you have selected a country code other than 32 (BELGIUM) or 41 (SUISSE), go to step 4.
- If you have selected 32 (BELGIUM) or 41 (SUISSE), go to step 3.

(Ex.) DEUTSCHLAND is selected



If you are referring to the on-screen display

Press **Δ** to move the highlight bar (pointer) to your country's name.



- If you have selected a country other than BELGIUM or SUISSE, go to step 4.
- If you have selected BELGIUM or SUISSE, go to step 3.

3 SELECT LANGUAGE

Press **OK**. The Language Set display appears on the front display panel and/or on the screen.

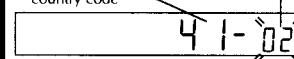
If you are referring to the front display panel

Press **Δ** to select your language code.

Language Code	
ENGLISH	: 01
DEUTSCH	: 02
FRANCAIS	: 03
ITALIANO	: 04
CASTELLANO	: 05
NEDERLANDS	: 06
SVENSKA	: 07
NORSK	: 08
SUOMI	: 09
DANSK	: 10

(Ex.) DEUTSCH is selected for SUISSE

International telephone country code



If you are referring to the on-screen display

Press **Δ** to move the highlight bar (pointer) to the language of your choice.



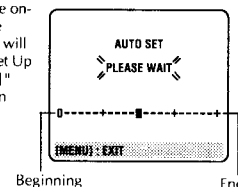
(Ex.) DEUTSCH is selected

4 PERFORM AUTO SET UP

Press **OK**.

"Auto" appears on the display panel and blinks; do NOT press any button on the recorder or remote control until the display panel shows either the display as illustrated in step 5 or "END".

- If "END" appears on the display panel, refer to page 8.
- If you are using the on-screen display, the AUTO SET screen will appear. As Auto Set Up progresses, the "■" mark on the screen moves from left to right.



NOTES:

- Auto channel set function takes place first; it assigns automatically all receivable stations in your area.
- Auto clock set function sets the clock automatically by reading the clock setting data from a station transmitting a PDC signal while auto channel set is being performed.
- During auto channel set, the recorder recognizes each station name of the detected stations and stores them in the recorder's memory, then automatically sets ShowView assigned Guide Program number for those stations according to the broadcast area.
- In the area where no TV station transmits a PDC signal, the recorder can perform neither auto clock set nor auto Guide Program number set.
- For RF connection users: The video recorder detects the channels which are not occupied by local stations and selects one channel automatically for your Video Channel that is located in the middle of more than 5 vacant channels.
- If there is a power cut, or if you press **PHOTO** or **MENU** while Auto Set Up is in progress, Auto Set Up will be interrupted; be sure to turn off the recorder power once and try again from step 1.

5 CONFIRM/SET VIDEO CHANNEL

If you have connected the video recorder to your TV via the provided RF cable only (RF connection)

The UHF channel that is shown on the display panel is your Video Channel.

To view picture signals from the video recorder, set your TV to the Video Channel. — Refer to the instructions supplied with your TV set for how to do this.



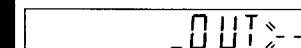
If you have connected the video recorder to your TV via both the provided RF cable and a 21-pin SCART cable (AV connection), or via the provided RF cable, the provided S-Video cable and an audio cable (S-VIDEO connection)

You do not need the video channel so you have to set the video channel to off.

Press **TV PROG** — until the display panel shows

"OUT—" to set the Video Channel to off.

To view picture signals from the video recorder, set your TV to its AV mode. — Refer to the instructions supplied with your TV set for how to do this.



6 FINISH AUTO SET UP

Press **OK** and refer to page 8 to check the results.

Auto Set Up results appear on the front display panel

A 20:00

When both auto channel set and auto clock set have been completed successfully the correct current time will be displayed after the **OK** button is pressed in step 6 on page 7.

B 1

When auto channel set has been completed successfully but auto clock set has not, "1" (channel position) will be displayed after the **OK** button is pressed in step 6 on page 7.

C ---:---

When neither auto channel set nor auto clock set has been completed successfully, "---:---" will be displayed.

You can check if the Guide Program numbers have been set correctly when you perform **ShowView** Timer Programming (pg. 26); if the correct channel position number is displayed in step 3, this confirms that the Guide Program number for the **ShowView** number you enter in step 2 has been set correctly.

A If both auto channel set and auto clock set have been performed successfully:

- 1 Turn on the TV and select its **VIDEO** channel or **AV** mode, then make sure that all necessary stations have been stored in the recorder's memory by using the **TV PROG** button(s).
 - If station names (ID — pg. 55) have also been stored in the recorder's memory, the station name will be displayed at the top left corner of the screen for about 5 seconds when the recorder is tuned to a different station.
 - If you want to set the tuner manually such as to add or skip channels, to change channel positions, or to set or change station names, see pages 52 – 56.

B If auto channel set has succeeded but auto clock set has not:

- 1 Turn on the TV and select its **VIDEO** channel or **AV** mode, then make sure that all necessary stations have been stored in the recorder's memory by using the **TV PROG** button(s).
 - If station names (ID — pg. 55) have also been stored in the recorder's memory, the station name will be displayed at the top left corner of the screen for about 5 seconds when the recorder is tuned to a different station.
 - If you want to set the tuner manually such as to add or skip channels, to change channel positions, or to set or change station names, see pages 52 – 56.
- 2 Perform "Clock Set" on page 58.

C If both auto channel set and auto clock set have failed:

- 1 Make sure the TV aerial cable is connected properly to the recorder and turn off the recorder power once, then turn the recorder power back on again.
 - The Country Set display appears on the front display panel and/or on the screen; perform steps 2 – 6 on pages 6 – 7 again.

IMPORTANT

- In certain reception conditions, station names may not be stored correctly, and auto Guide Program Number Set may not work properly. If the Guide Program numbers are not set properly, when you timer-record a TV programme using **ShowView**, the recorder will record a TV programme of a different station. When programming the timer using **ShowView**, be sure to check whether the channel position on which your recorder receives the broadcasting station you wish to record is selected (pg. 26, "ShowView Timer Programming").
- Your video recorder memorizes all detected stations even if reception of some of them is poor. In these cases picture quality may be poor. To delete those stations with an unacceptable picture ☞ "Delete A Channel" on page 53.
- For **RF connection users**: In certain reception conditions, the Video Channel may not be set correctly and interference may appear in the TV picture while the recorder's power is on. Set your Video Channel manually. ☞ pg. 49, "Video Channel Set".

INFORMATION

Language for the on-screen display

Auto Set Up also selects the language automatically for the on-screen display depending on the Country setting you have made in step 2 on page 6 (unless you have selected **BELGIUM** or **SUISSE**), as shown below.

SUOMI	→ SUOMI	SVERIGE	→ SVENSKA	ESPAÑA	→ CASTELLANO
PORTUGAL	→ ENGLISH	DANMARK	→ DANSK	NEDERLAND	→ NEDERLANDS
DEUTSCHLAND	→ DEUTSCH	ÖSTERREICH	→ DEUTSCH	GREECE	→ ENGLISH
NORGE	→ NORSK	ITALIA	→ ITALIANO	OTHERS	→ ENGLISH

If you want to change the language setting manually, ☞ "Language" on page 9.

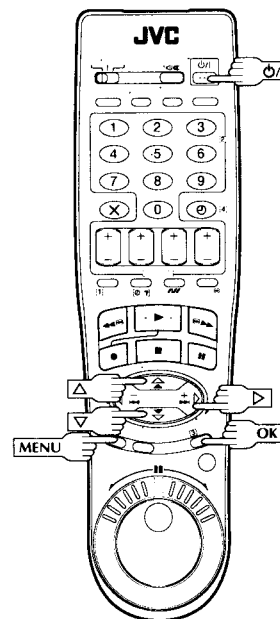
Just Clock

Your recorder is equipped with the Just Clock function which provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a **PDC** signal. If you want to take advantage of this function, simply set it to "ON".

☞ "Just Clock" on page 58.

Language

Turn on the TV and select the **VIDEO** channel (or **AV** mode).



This recorder offers you the choice to view on-screen messages in 10 different languages. Though Auto Set Up selects the language automatically (pg. 8), you can change the language setting manually using this procedure as required.

TURN ON THE RECORDER

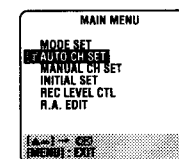
Press **⏻**/I.

ACCESS MAIN MENU

Press **MENU**.

ACCESS COUNTRY SET SCREEN

Press **Δ**/**∇** to move the highlight bar (pointer) to "AUTO CH SET", then press **OK** or **▷**.



SELECT COUNTRY

Press **Δ**/**∇** to move the highlight bar (pointer) to your country's name, then press **OK** or **▷**.

SELECT LANGUAGE

Press **Δ**/**∇** to move the highlight bar (pointer) to the language of your choice.

- You do not have to press **OK**; pressing **OK** starts Auto Channel Set.

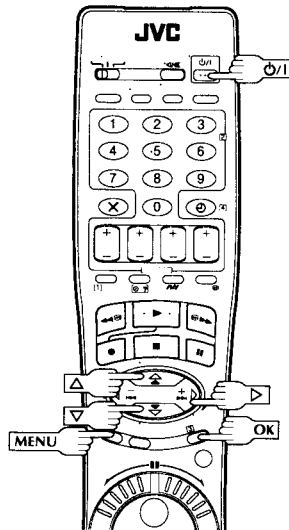


RETURN TO NORMAL SCREEN

Press **MENU**.

On-Screen Displays

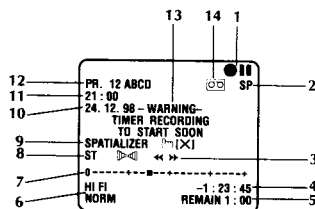
Turn on the TV and select the VIDEO channel (or AV mode).



NOTES:

- When you use this recorder as the player for editing, be sure to set "O.S.D." to "OFF" before starting.
- During playback, the operation mode indicators may be disturbed depending on the type of tape being used.

The superimposed indication on the TV screen tells you what the recorder is doing.



You can choose whether or not to have various operational indicators appear on screen, by setting this function ON or OFF. Messages appear in the selected language (Ⓔ pg. 8 or 9).

1 TURN ON THE RECORDER

Press **O/I**.

2 ACCESS MAIN MENU SCREEN

Press **MENU**.

3 ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing **Δ**/**∇**, then press **OK** or **▷**.

4 ENABLE/DISABLE ON-SCREEN DISPLAY

The default setting is "ON", so if you want on-screen displays, leave the setting as it is and go to step 5. If you don't want the displays to appear, press **Δ**/**∇** to move the highlight bar (pointer) to "O.S.D." and press **OK** or **▷** to set "O.S.D." to "OFF".

HR-S9500E		HR-S9500EH	
MODE SET		MODE SET	
AUTO TIMER	OFF	AUTO TIMER	OFF
O.S.D.	ON	O.S.D.	ON
E.E.S.T.	ON	E.E.S.T.	ON
AUTO SP→LP TIMER	OFF	AUTO SP→LP TIMER	OFF
DIGITAL 3R	ON	DIGITAL 3R	ON
POWER SAVE	OFF	POWER SAVE	ON
S-VHS	AUTO	S-VHS	AUTO
EDIT	AUTO	EDIT	OFF
NEXT PAGE		NEXT PAGE	
[A-] [A+] [ESC]		[A-] [A+] [ESC]	
[MENU] : EXIT		[MENU] : EXIT	

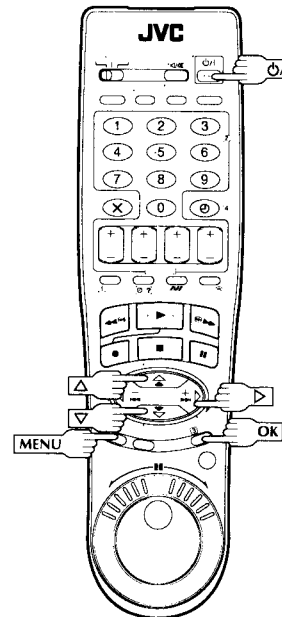
5 RETURN TO NORMAL SCREEN

Press **MENU**.

5

Power Save Mode (HR-S9500E only)

Turn on the TV and select the VIDEO channel (or AV mode).



You can reduce the power consumption while the recorder is turned off.

1 TURN ON THE RECORDER

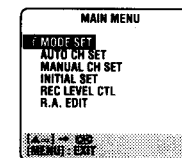
Press **O/I**.

2 ACCESS MAIN MENU SCREEN

Press **MENU**.

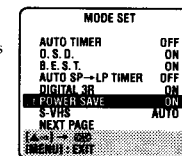
3 ACCESS MODE SET SCREEN

Press **Δ**/**∇** to move the highlight bar (pointer) to "MODE SET", then press **OK** or **▷**.



4 SELECT POWER SAVE MODE

Press **Δ**/**∇** to move the highlight bar (pointer) to "POWER SAVE", then press **OK** or **▷** to set to "ON".



5 RETURN TO NORMAL SCREEN

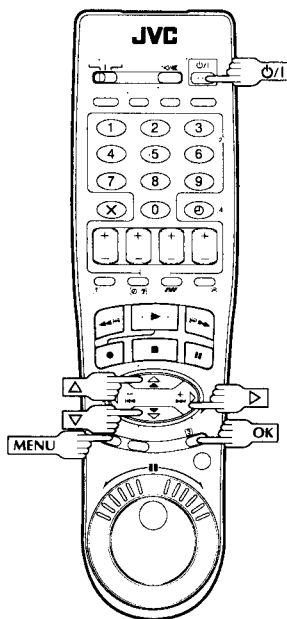
Press **MENU**.

5

NOTES:

- During Power Save, the display panel will be turned off.
- The Just Clock function (Ⓔ pg. 58) does not work while the Power Save mode is engaged.
- While the recorder is in the Power Save mode, the picture may be distorted momentarily when you turn on/off the recorder.
- Power Save does not work when ...
 - ... the recorder is in the Timer mode.
 - ... the recorder's power is turned off after timer-recording (or Instant Timer Recording).
 - ... the Auto Satellite Prog Recording mode is engaged (Ⓔ pg. 32).
 - ... "AV2 SELECT" is set to "DECODER" or "SAT" (Ⓔ pg. 39).

Colour System Set



NOTES:

About NTSC Playback

- Some TVs shrink the picture vertically and place black bars at the top and bottom of the screen. This is not a malfunction on the part of either the video recorder or the TV.
- The picture may roll up and down. This can be corrected using the V-HOLD control found on some TVs. (This cannot be corrected if the TV does not have a V-HOLD control.)
- The counter and tape remaining time readings will be incorrect.
- During search, still, or frame-by-frame playback, the picture will be distorted, and there may be a loss of colour.
- Depending on the type of TV, the top and bottom portions of superimposed displays may be cut off during NTSC playback.

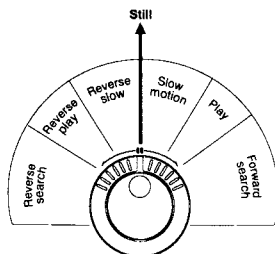
You can play back PAL, NTSC and MESECAM tapes, or record PAL and SECAM* signals on this recorder. Follow the procedure below to select the appropriate colour system.

- * SECAM signals will be recorded as MESECAM on this recorder; MESECAM is the designation for tapes with SECAM signals that have been recorded on a MESECAM-compatible PAL video cassette recorder.

- 1 TURN ON THE RECORDER**
Press **ON**.
- 2 ACCESS MAIN MENU SCREEN**
Press **MENU**.
- 3 ACCESS MODE SET SCREEN**
Press Δ / ∇ to move the highlight bar (pointer) to "MODE SET", then press **OK** or $\triangleright$.

MAIN MENU	
MODE SET	
AUTO CH SET	
MANUAL CH SET	
INITIAL SET	
REC LEVEL CTL	
R.A. EDIT	
[F1] [F2] [F3] [F4] [F5] [F6] [F7] [F8] [F9] [F10] [F11] [F12] [F13] [F14] [F15] [F16] [F17] [F18] [F19] [F20] [F21] [F22] [F23] [F24] [F25] [F26] [F27] [F28] [F29] [F30] [F31] [F32] [F33] [F34] [F35] [F36] [F37] [F38] [F39] [F40] [F41] [F42] [F43] [F44] [F45] [F46] [F47] [F48] [F49] [F50] [F51] [F52] [F53] [F54] [F55] [F56] [F57] [F58] [F59] [F60] [F61] [F62] [F63] [F64] [F65] [F66] [F67] [F68] [F69] [F70] [F71] [F72] [F73] [F74] [F75] [F76] [F77] [F78] [F79] [F80] [F81] [F82] [F83] [F84] [F85] [F86] [F87] [F88] [F89] [F90] [F91] [F92] [F93] [F94] [F95] [F96] [F97] [F98] [F99] [F100] [F101] [F102] [F103] [F104] [F105] [F106] [F107] [F108] [F109] [F110] [F111] [F112] [F113] [F114] [F115] [F116] [F117] [F118] [F119] [F120] [F121] [F122] [F123] [F124] [F125] [F126] [F127] [F128] [F129] [F130] [F131] [F132] [F133] [F134] [F135] [F136] [F137] [F138] [F139] [F140] [F141] [F142] [F143] [F144] [F145] [F146] [F147] [F148] [F149] [F150] [F151] [F152] [F153] [F154] [F155] [F156] [F157] [F158] [F159] [F160] [F161] [F162] [F163] [F164] [F165] [F166] [F167] [F168] [F169] [F170] [F171] [F172] [F173] [F174] [F175] [F176] [F177] [F178] [F179] [F180] [F181] [F182] [F183] [F184] [F185] [F186] [F187] [F188] [F189] [F190] [F191] [F192] [F193] [F194] [F195] [F196] [F197] [F198] [F199] [F200] [F201] [F202] [F203] [F204] [F205] [F206] [F207] [F208] [F209] [F210] [F211] [F212] [F213] [F214] [F215] [F216] [F217] [F218] [F219] [F220] [F221] [F222] [F223] [F224] [F225] [F226] [F227] [F228] [F229] [F230] [F231] [F232] [F233] [F234] [F235] [F236] [F237] [F238] [F239] [F240] [F241] [F242] [F243] [F244] [F245] [F246] [F247] [F248] [F249] [F250] [F251] [F252] [F253] [F254] [F255] [F256] [F257] [F258] [F259] [F260] [F261] [F262] [F263] [F264] [F265] [F266] [F267] [F268] [F269] [F270] [F271] [F272] [F273] [F274] [F275] [F276] [F277] [F278] [F279] [F280] [F281] [F282] [F283] [F284] [F285] [F286] [F287] [F288] [F289] [F290] [F291] [F292] [F293] [F294] [F295] [F296] [F297] [F298] [F299] [F300] [F301] [F302] [F303] [F304] [F305] [F306] [F307] [F308] [F309] [F310] [F311] [F312] [F313] [F314] [F315] [F316] [F317] [F318] [F319] [F320] [F321] [F322] [F323] [F324] [F325] [F326] [F327] [F328] [F329] [F330] [F331] [F332] [F333] [F334] [F335] [F336] [F337] [F338] [F339] [F340] [F341] [F342] [F343] [F344] [F345] [F346] [F347] [F348] [F349] [F350] [F351] [F352] [F353] [F354] [F355] [F356] [F357] [F358] [F359] [F360] [F361] [F362] [F363] [F364] [F365] [F366] [F367] [F368] [F369] [F370] [F371] [F372] [F373] [F374] [F375] [F376] [F377] [F378] [F379] [F380] [F381] [F382] [F383] [F384] [F385] [F386] [F387] [F388] [F389] [F390] [F391] [F392] [F393] [F394] [F395] [F396] [F397] [F398] [F399] [F400] [F401] [F402] [F403] [F404] [F405] [F406] [F407] [F408] [F409] [F410] [F411] [F412] [F413] [F414] [F415] [F416] [F417] [F418] [F419] [F420] [F421] [F422] [F423] [F424] [F425] [F426] [F427] [F428] [F429] [F430] [F431] [F432] [F433] [F434] [F435] [F436] [F437] [F438] [F439] [F440] [F441] [F442] [F443] [F444] 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Playback Features



NOTES:

- Refer to the **SHUTTLE** ring illustration above as you read the following procedures.
- To use the remote control's **JOG** dial or **SHUTTLE** ring, press **JOG/SHUTTLE** first so that the button lights. Pressing the button again turns off the light.

Still Picture/Frame-By-Frame Playback

1 PAUSE DURING PLAYBACK

Press **PAUSE**.

- During still picture, the sound from the previous 3 seconds (approx.) will be played back repeatedly (provided there was at least 6 seconds of normal playback prior to engaging the still picture mode).
- "TIME SCAN AUDIO" must be set to "ON", or the sound will not be heard. (pg. 19)

2 ACTIVATE FRAME-BY-FRAME PLAYBACK

Turn the **JOG** dial to the right for forward frame-by-frame playback, or to the left for reverse frame-by-frame playback.

OR

Press **PAUSE**.

OR

Press **<** or **>**.

To resume normal playback, press **PLAY**.

Slow Motion

1 ACTIVATE SLOW-MOTION PLAYBACK

During playback or still, turn the **SHUTTLE** ring to the right for forward slow motion, or to the left for reverse slow motion (refer to the illustration to the left).

OR

During still picture, press and hold **PAUSE** for 2 seconds, then release. Press and release again to return to still picture.

OR

During still picture, press and hold **<** or **>**. Release to return to still picture.

To resume normal playback, press **PLAY**.

NOTE:

For Time Jog, see page 19.

High-Speed (Turbo) Search

1 ACTIVATE HIGH-SPEED SEARCH

During playback or still, turn the **SHUTTLE** ring all the way to the right for forward high-speed search, or to the left for reverse high-speed search. Releasing **SHUTTLE** resumes still picture playback.

OR

During playback or still, press **FF** for forward high-speed search, or **REW** for reverse high-speed search.

To resume normal playback, press **PLAY**.

NOTE:

For short searches, press and hold **FF** or **REW** for over 2 seconds during playback or still picture. When released, normal playback resumes.

ATTENTION

- The operations by the remote control's **JOG** dial/**SHUTTLE** ring do not include TimeScan (pg. 18).
- Picture may not appear during high-speed search with an LP-recorded tape.
- In the high-speed search, still, slow motion or frame by frame playback mode, the picture will be distorted, and there will be a loss of colour.

Variable-Speed Search

1 ACTIVATE VARIABLE-SPEED SEARCH

During playback or still, turn the **SHUTTLE** ring to the right for forward variable-speed search, or to the left for reverse variable-speed search (refer to the illustration on page 14).

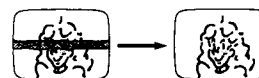
To resume normal playback, press **PLAY**.

NOTE:

Variable-speed search with TimeScan (pg. 18) can be used by pressing the remote control's **<** or **>** button.

Manual Tracking

Your video recorder is equipped with automatic tracking control. During playback, you can override this and adjust the tracking manually by pressing the **TV PROG** buttons.



1 OVERRIDE AUTOMATIC TRACKING

Press **TV PROG** on the remote to engage manual tracking.

2 ADJUST TRACKING MANUALLY

Press **TV PROG +** or **-** to adjust tracking.

3 RETURN TO AUTOMATIC TRACKING

Press **TV PROG** on the remote to re-engage automatic tracking.

NOTE:

When a new tape is inserted, the recorder enters the automatic tracking mode automatically.

Skip Search

1 SKIP OVER UNWANTED SECTIONS

Press **30 SEC** 1 to 4 times during playback. Each press initiates a 30-second period of fast-motion playback. Normal playback resumes automatically.

NOTE:

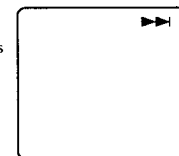
To return to normal playback during a Skip Search, press **PLAY**.

Index Search

Your recorder automatically marks index codes at the beginning of each recording. This function gives you quick access to any one of 9 index codes in either direction.

NOTE:

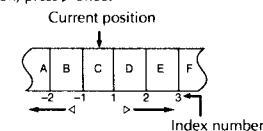
Before starting, make sure the recorder is in the Stop mode.



1 ACTIVATE INDEX SEARCH

Press **<** or **>** (or **1** or **9**). "**1**" or "**9**" is displayed on screen and search begins in the corresponding direction.

- To access index codes 2 through 9, press **<** or **>** repeatedly until the correct index number is displayed. Ex.: To locate the beginning of B from the current position, press **<** twice. To locate the beginning of D from the current position, press **>** once.



- When the specified index code is located, playback begins automatically.

Instant ReView

Simply by pressing a single button, the recorder power comes on, rewinds, and begins playback of the last timer-recorded programme. If you have several programmes recorded, you can easily access any of them.

NOTE:

Before starting, make sure that the recorder is off and that the Timer mode is disengaged.

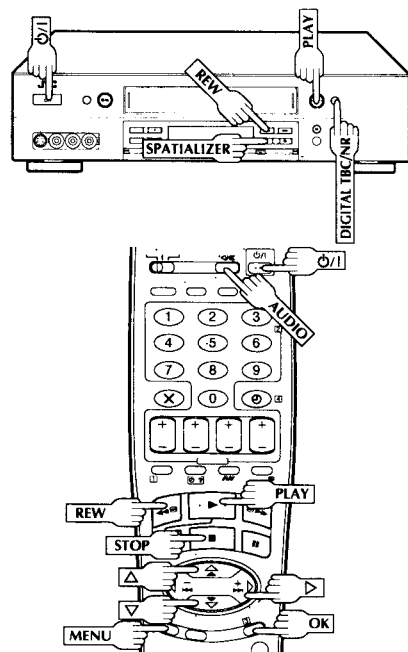
1 ACTIVATE INSTANT REVIEW

Press **REVIEW**. The recorder power comes on and the recorder searches for the index code indicating the start of the last timer-recorded programme. Once it's found, playback begins automatically.

- The front display panel tells you how many programmes have been timer-recorded. If you have, for example, 3 programmes, "REVIEW" and "3" appear and blink. To watch the first of the 3 programmes, press **REVIEW** three times. The recorder searches and begins playback automatically. You can access a programme as far as 9 index codes away from the current tape position.

NOTES:

- Instant ReView is not possible while the recorder is in the Timer mode.
- The number of recorded programmes will not be displayed on the front display panel after Auto Satellite Prog recording (pg. 32).



Digital TBC/NR

Your video recorder is equipped with the Digital TBC (Time Base Corrector) that removes jitter from fluctuating video signals to deliver a stable picture even with old tapes and rental cassettes.

The on/off of Digital 3-DNR (Noise Reduction) which cuts noise and enables clear picture reproduction is also linked to this function.

* The default setting is "ON".

We recommend that you use the Digital TBC feature when...

... playing back a tape recorded on a camcorder.

... playing back a tape repeatedly used.

... using this video recorder as the player for editing.

1 ACTIVATE DIGITAL TBC/NR

Press **DIGITAL TBC/NR** so that the button lights up.

- To turn off DIGITAL TBC/NR, press **DIGITAL TBC/NR** again so that the light goes off.

NOTES:

- If you play back a tape recorded under poor TV reception condition, there may be cases where the picture becomes more stable with Digital TBC/NR set to off.
- When Digital TBC/NR is set to on, if you play back a tape where certain types of signals are recorded (using a PC or audio character generator), the playback picture may be distorted. If this is the case, turn off Digital TBC/NR.

Digital 3R

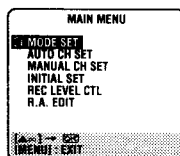
Digital 3R picture system applies edge correction to the luminance signal to enhance detail.

1 ACCESS MAIN MENU SCREEN

Press **MENU**.

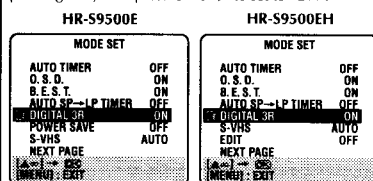
2 ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing Δ , then press **OK** or $\triangleright$.



3 SELECT DIGITAL 3R SET MODE

Move the highlight bar (pointer) to "DIGITAL 3R" by pressing Δ , then press **OK** or $\triangleright$ to set to "ON".



4 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTES:

- Normally it is recommendable to keep "DIGITAL 3R" set to "ON".
- Depending on the type of tape being used, picture quality may be better with "DIGITAL 3R" set to "OFF".

Spatializer®

This feature expands sound field when you play back any stereo source or view a stereo programme while recording it.

*Spatializer® has no effect on recording quality.

1 ACTIVATE SPATIALIZER®

Press **SPATIALIZER**; the current setting will be displayed on the screen for about 5 seconds. Pressing **SPATIALIZER** while the screen shows the display changes the setting.

- To view a stereo programme such as movies or music, select "SPATIALIZER" $\triangleright$ $\llcorner$ to create more spacious sound.
- To view a monaural programme, select "SPATIALIZER $\rightarrow$ ST" which simulates a stereo effect.
- Select "SPATIALIZER OFF" to turn off Spatializer® if the sound becomes unnatural with either "SPATIALIZER $\triangleright$ $\llcorner$ " or "SPATIALIZER $\rightarrow$ ST" selected.
- If your TV is equipped with 3D-PHONIC and if you use both Spatializer® and 3D-PHONIC at the same time, the sound may become unnatural; set either function to "OFF".
- The setting will remain effective even though you turn on/off the recorder.

NOTES:

- Spatializer® is effective only with a stereo TV.
- You can change the Spatializer® setting even though "O.S.D." is set to "OFF".
- The setting cannot be changed during search, still, frame-by-frame playback or slow motion mode.
- When this recorder is used as the player for editing, the recorded audio will correspond to the Spatializer® setting.

Repeat Playback

Your video recorder can automatically play back the whole tape 50 times repeatedly.



1 START PLAYBACK

Press **PLAY**.

2 ACTIVATE REPEAT PLAYBACK

Press **PLAY** and hold for over 5 seconds, then release.

- The Play indicator (●) on the display panel blinks slowly.
- The tape plays 50 times automatically, and then stops.

3 STOP PLAYBACK

Press **STOP** at any time to stop playback.

NOTE:

Pressing **PLAY**, **REW**, **FF** or **PAUSE** also stops Repeat Playback.

Next Function Memory

You can set your recorder's power to go off automatically after the tape is fully rewound. Before starting, make sure the recorder is in the Stop mode.

For Automatic Power Off After Tape Rewind . . .
... press **REW**, then press ψ /I within 2 seconds.

Soundtrack Selection

Your video recorder is capable of recording three soundtracks (HI-FI L, HI-FI R and NORM) and will play back the one you select.

During Playback

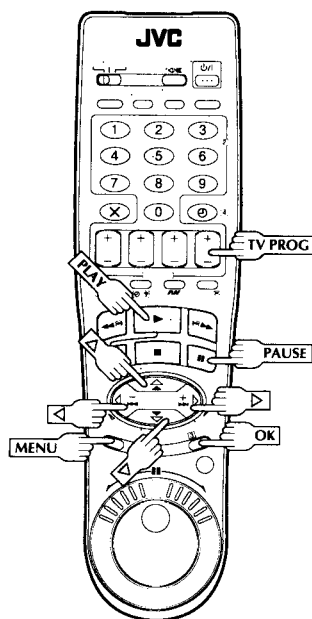
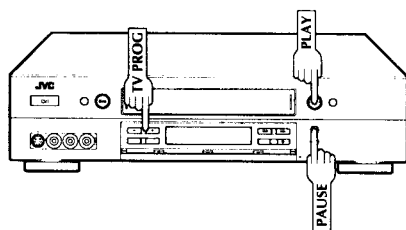
Pressing **AUDIO** on the remote control changes the soundtrack being played back as follows:

TRACK		USE
Recorder's Front Panel	On-Screen Display	
$\boxplus$ + $\boxminus$	HI FI L $\triangleright$ R	For Hi-Fi stereo tapes
$\triangleright$	HI FI L	For main audio of Bilingual tapes
$\boxminus$	HI FI $\llcorner$ R	For sub audio of Bilingual tapes
NORM	NORM	For audio-dubbed tapes
$\boxplus$ + $\boxminus$ + NORM	HI FI NORM	For audio-dubbed tapes

NOTES:

- $\boxplus$ + $\boxminus$ should normally be selected. In this mode, Hi-Fi stereo tapes are played back in stereo, and the normal audio track is played back automatically for tapes with only normal audio.
- For instructions on recording stereo and bilingual programmes, refer to page 23.
- "O.S.D." must be set to "ON" or the on-screen displays will not appear (pg. 10).

TimeScan

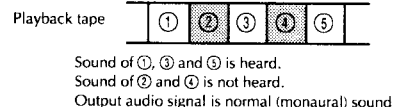


Your recorder is equipped with the TimeScan function. TimeScan allows noise free pictures to be displayed on your TV screen in the forward and reverse search modes. Audio will be played back at normal speed during the TimeScan modes (pg. 19). TimeScan also allows you to view a programme in search mode while listening to the audio.

NOTES:

- "TIME SCAN AUDIO" must be set to "ON", or the sound will not be heard in TimeScan mode. (pg. 19)
- The audio will not synchronize with the video in TimeScan modes.
- In Pause mode 3 seconds (approx.) of audio will be played back repeatedly. (pg. 14)
- In TimeScan search modes some of the audio information will not be played so that the audio can keep up with the video.

Audio signal during TimeScan



Variable-Speed Search

1 ACTIVATE VARIABLE-SPEED SEARCH

During playback, press ◀ or ▶.

- The more times you press, the faster the playback picture moves.
- To decrease speed, press the button for the opposite direction.

(Refer to the chart on pg. 19 for playback speeds).

To resume normal playback, press **PLAY**.

If the picture jitters vertically during still or variable-speed search with a MESECAM tape:

- 1 Press **PAUSE**.
- 2 Press **TV PROG** + or - so that the vibration stops.

TimeScan

Names of special-effects playback	Reverse				Forward			
	Search	Play	Slow-Motion (Time Jog**)	*Still	Slow-Motion (Time Jog**)	Play	Search	
Speed SP	-9x -7x -5x -3x	-1x	-1/2x	0	1/2x	1x 1.5x 2x 3x 5x 7x 9x		
Speed LP	 -7x -3x	 -1x	-1/2x	0	1/2x	1x 1.5x 2x  5x  9x		
Audio output	Audio is output.		Audio is not output.	Audio is output.	Audio is output.	Audio is output.		

* Still mode cannot be engaged using the remote control's ◀ or ▶ button. Still mode can be engaged by pressing the **PAUSE** button.

** Smooth slow motion delivering an uninterrupted moving image without distortion.

- The speed is shown during TimeScan in the upper right corner of the TV screen for approx. 5 seconds. (The display may be distorted.)
- To resume normal playback, press **PLAY**.
- Picture and audio may become distorted when the recording speed changes. When this happens, resume normal playback once, and then try using TimeScan again.
- The picture may be noisy or there may be a loss of colour when you change the playback speed. (More noise will appear with LP recordings.)
- Noise may appear or the upper part of the picture may be distorted during still, frame-by-frame playback, 2x search of LP recordings, or depending on the tape being used.
- Picture may appear distorted in comparison to normal playback.
- In TimeScan mode there will be a time lag between the video and the audio and noise may appear in the audio signal.
- TimeScan sound quality will differ in comparison to normal playback.
- When material such as music videos where there is non-stop sound (very few breaks in the soundtrack) are viewed at 2x normal speed, the audio playback may be faster than normal.
- Depending on the type of tape contents, the sound may not be clear during forward slow-motion playback.
- Time Jog cannot be activated by pressing **PAUSE** for longer than 2 seconds.
- When the playback direction is reversed, it takes approximately 6 seconds until sound is heard.
- Picture will be monochrome with an LP-recorded MESECAM tape during TimeScan.
- When playing back an NTSC tape, the speeds differ from those listed above and are not shown on the TV screen.
- TimeScan at -1/2x, 1/2x and 1.5x normal speed are not possible with a MESECAM tape.
- The operations by the remote's **JOG** dial/**SHUTTLE** ring do not include TimeScan; noise will appear on the screen and audio will not be output.

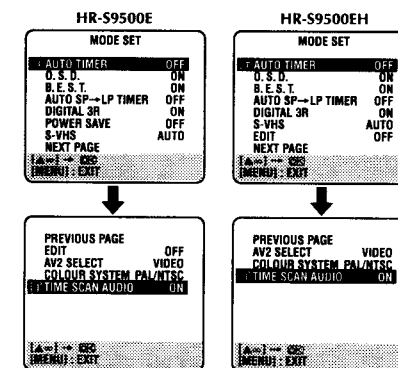
If you don't want to hear TimeScan audio, set "TIME SCAN AUDIO" to "OFF" (See below).

TimeScan Audio

The audio output can be set ON/OFF during TimeScan. Select ON/OFF as required.

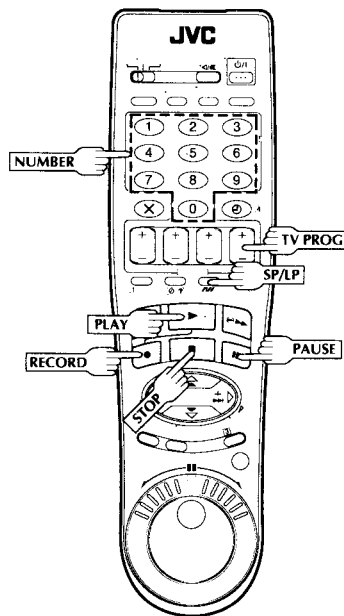
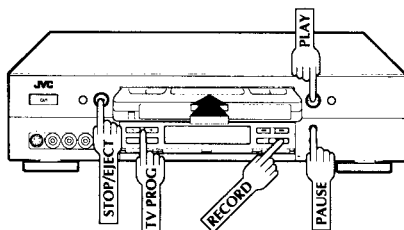
* The default setting is "ON".

- 1 Press **MENU** to access the Main Menu screen.
- 2 Move the highlight bar (pointer) to "MODE SET" by pressing ◀, then press **OK** or ▶.
- 3 Move the highlight bar (pointer) to "TIME SCAN AUDIO" by pressing ◀, then press **OK** or ▶ to select "ON" or "OFF".
- 4 Press **MENU** to return to the normal screen.



Basic Recording

Turn on the TV and select the VIDEO channel (or AV mode).



TV signals being received by the recorder's built-in tuner can be recorded onto a video tape. You can "capture" a TV programme using your video recorder.

1 LOAD A CASSETTE

Insert a cassette with the record safety tab intact.

- The counter is reset to 0:00:00 and the recorder power comes on automatically.

2 CHOOSE A PROGRAMME

Press **TV PROG +/-** or the **NUMBER** keys to select the channel you wish to record.

3 SET TAPE SPEED

Press **SP/LP (///)**. Check the SP/LP indicator on the recorder display panel to confirm the selected tape speed.

4 START RECORDING

Press and hold **RECORD** and press **PLAY** on the remote control, or press **RECORD** on the recorder.

B.E.S.T. takes place at the beginning of both the first SP and the first LP recording after inserting the cassette (see pg. 24).

5 PAUSE/RESUME RECORDING

Press **PAUSE**. Press **PLAY** to resume recording.

6 STOP RECORDING

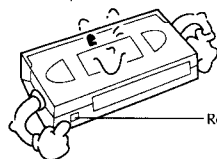
Press **STOP** on the remote control or **STOP/EJECT** on the recorder. Then press **STOP/EJECT** to remove the cassette.

Recording Resume Function

If there is a power outage during recording (or Instant Timer Recording or timer recording), the recording will resume automatically when power is restored to the recorder unless the recorder's memory backup has expired.

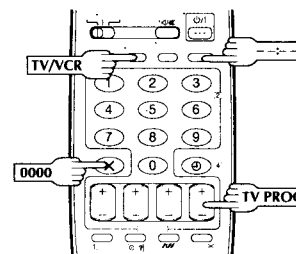
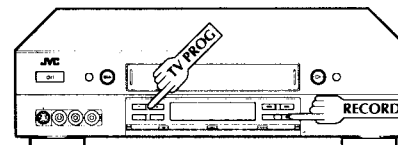
Accidental erasure prevention

- To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



Record safety tab

Recording Features



Instant Timer Recording (ITR)

This easy method lets you record for from 30 minutes to 6 hours (selectable in 30-min. increments), and shuts the recorder off after recording is finished.

1 START RECORDING

Press **RECORD** on the recorder.

2 ENGAGE ITR MODE

Press **RECORD** again. "ITR" blinks and 0:30 appears on the front display panel.

3 SET RECORDING DURATION

If you want to record for more than 30 minutes, press **RECORD** to extend the time. Each press extends recording time by 30 minutes.

NOTE:

You can only perform ITR using the **RECORD** button on the recorder's front panel.

Record One Programme While Watching Another

If your recorder is connected to the TV via AV connection, ... press **TV/VCR**. The recorder's VCR indicator and the TV broadcast being recorded disappear.

1 SELECT CHANNEL TO WATCH

Once recording is in progress, all you need to do is to set the channel controls on the TV for the station you wish to view.

- The programme selected with the TV's channel controls appears on the TV screen while the one selected with the recorder's **TV PROG** buttons is recorded on the tape.
- If a decoder is connected to the recorder (see pg. 47), you can select a scrambled channel as well with the TV channel controls.

Elapsed Recording Time Indication

You can check the exact time of a recording.

1 SET COUNTER DISPLAY

Press **---** until a counter reading appears on the display panel.

2 RESET COUNTER

Press **0000** before starting recording or playback.

- The counter is reset to "0:00:00" and shows the exact elapsed time as the tape runs.

Tape Remaining Time

1 DISPLAY REMAINING TIME

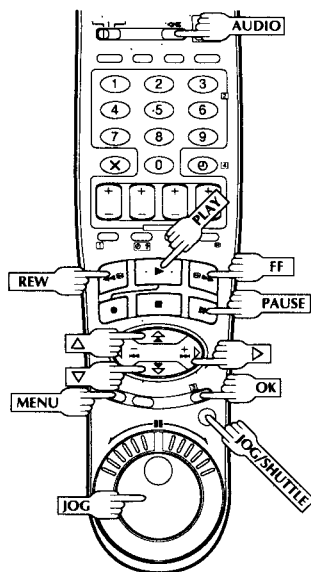
Press **---** until the time remaining on the tape appears.

- The display panel shows the tape remaining time with "TR" displayed.
- By pressing the **---** button, you can change the display to show the counter reading, channel position*, clock time or tape remaining time.

* channel position is not displayed during playback.

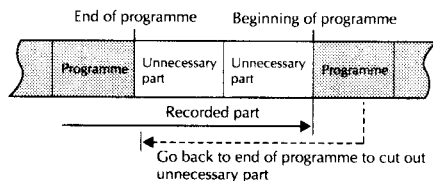
NOTE:

Depending on the type of tape used, there may be times when the tape remaining time reading may not appear right away, or is not correct. "TR" may sometimes appear, or the display may blink on occasion.



Retake

You can cut out unnecessary parts of a TV programme while you're recording it.



ENGAGE RECORD-PAUSE MODE

Press **PAUSE** during recording.

LOCATE START POINT

First press **JOG/SHUTTLE** and turn the **JOG** dial (or hold down **REW** or **FF**) and release it when you reach the point where you want to resume recording.
* Your recorder returns to the Record-Pause mode.

RESUME RECORDING

Press **PLAY** when you wish to resume recording.

S-VHS (Super VHS) and VHS

Your recorder can record in either S-VHS or VHS.

To record in S-VHS:

Perform the steps 1 – 4 below to set "S-VHS" to "AUTO". Then, insert a cassette marked "S-VHS", the S-VHS indicator will light on the display panel.
The S-VHS recording mode will be selected.

To record in VHS:

Insert a cassette marked "VHS".
The VHS recording mode will be automatically selected regardless of the S-VHS mode setting.

To record in VHS on an S-VHS cassette:

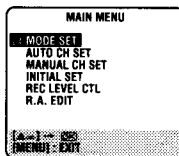
Insert the cassette marked "S-VHS", the S-VHS indicator will light on the display panel.
Then, perform the steps 1 – 4 below to set the "S-VHS" to "OFF"; the S-VHS indicator will go out.
The VHS recording mode will be selected.

ACCESS MAIN MENU SCREEN

Press **MENU**.

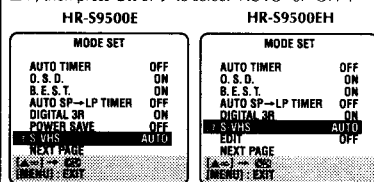
ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing Δ or ∇ , then press **OK** or **D**.



SELECT S-VHS MODE

Move the highlight (pointer) to "S-VHS" by pressing Δ or ∇ , then press **OK** or **D** to select "AUTO" or "OFF".



RETURN TO NORMAL SCREEN

Press **MENU**.

NOTE:

When playing back a tape that has been recorded in S-VHS, the S-VHS indicator lights on the display panel regardless of the "S-VHS" mode setting.

Hi-Fi Audio Recording Level Control

Your recorder allows manual adjustment of the Hi-Fi audio recording level. Normally the preset audio recording level is satisfactory, but if the sound you are going to record is too loud or too low, adjust the audio recording level while referring to the recorder's audio level meters.

ACCESS MAIN MENU SCREEN

Press **MENU**.

ACCESS HI-FI REC LEVEL CONTROL SCREEN

Press Δ or ∇ to move the highlight bar (pointer) to "REC LEVEL CTL", then press **OK** or **D**.

SELECT MODE

Move the highlight bar (pointer) to "MANUAL" by pressing Δ or ∇ , then press **OK** or **D**.



ADJUST AUDIO RECORDING LEVEL

Press Δ or ∇ .

- Press Δ or ∇ briefly 5 times to move the on-screen's audio levels by one division on the scale. To move the audio levels faster, keep Δ or ∇ pressed.
- Adjust the recording level while watching the recorder's audio level meters. Set the level so that maximum volume causes the meters to vary between 0dB to 4dB.

RETURN TO NORMAL SCREEN

Press **MENU**.

NOTE:

Noise will increase if the recording level is too low, while distortion will increase if the level is too high.

Receiving Stereo And Bilingual Programmes

Your recorder is equipped with a Sound-Multiplex decoder (A2) and, if you own the HR-S9500EH, a Digital stereo sound decoder (NICAM) as well, making reception of stereo and bilingual broadcasts possible.

When the channel is changed, the type of broadcast being received will be displayed on the TV screen for a few seconds.

Type of Broadcast Being Received	On-screen Display
A2 Stereo	ST
A2 Bilingual	BIL
Regular Monaural	(none)
*NICAM Stereo	ST NICAM
*NICAM Bilingual	BIL NICAM
*NICAM Monaural	NICAM

*Available with HR-S9500EH only.

- To listen to a stereo programme, press **AUDIO** until "L" and "R" appear on the front display panel or "HIFI L" or "HIFI R" appears on the screen.
- To listen to a bilingual programme, press **AUDIO** until "L" or "R" appears on the front display panel, or "HIFI L" or "HIFI R" appears on the screen (as required).
- To listen to the Standard (regular monaural) audio while receiving a NICAM broadcast, press **AUDIO** until "NORM" appears on the front display panel or on the screen. (HR-S9500EH only)

NOTE:

"O.S.D." must be set to "ON" or the on-screen displays will not appear (pg. 10).

To Record Stereo And Bilingual Programmes (A2)

- Stereo programmes are automatically recorded in stereo on the Hi-Fi audio track (with the normal audio track recording mixed L and R channel sound).
- Bilingual programmes are automatically recorded in bilingual on the Hi-Fi audio track. The main soundtrack will be recorded on the normal audio track.

To Record NICAM Stereo And Bilingual Programmes (HR-S9500EH only)

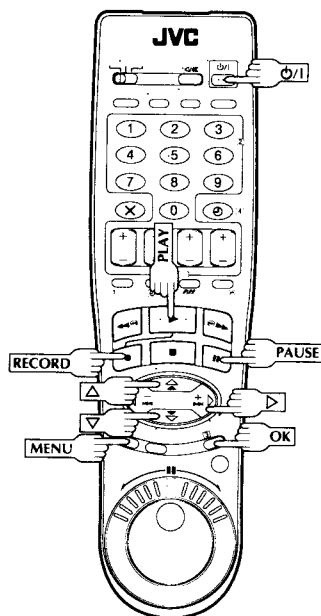
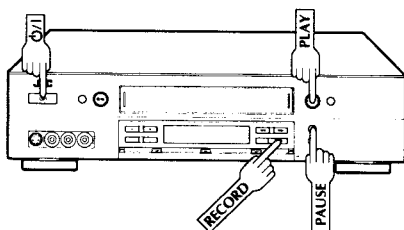
The NICAM audio programme will be recorded on the Hi-Fi audio track, and the Standard audio programme on the normal audio track.

NOTES:

- If the quality of stereo sound being received is poor, the broadcast will be received in monaural with better quality.
- Before playing back a programme recorded in stereo, or a bilingual programme, refer to "Soundtrack Selection" (pg. 17).

B.E.S.T. Picture System

Turn on the TV and select the VIDEO channel (or AV mode).



The B.E.S.T. (Biconditional Equalised Signal Tracking) system checks the condition of the tape in use during recording and playback, and compensates to provide the highest-possible recording and playback pictures. The default setting for both recording and playback is "ON".

Preparation

1 TURN ON THE RECORDER

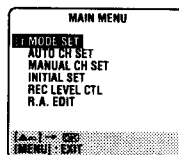
Press ϕ/I .

2 ACCESS MAIN MENU SCREEN

Press MENU.

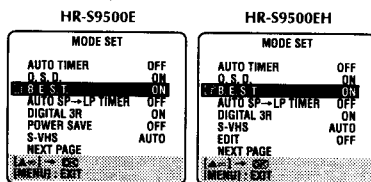
3 ACCESS MODE SET SCREEN

Press $\Delta \nabla$ to move the highlight bar (pointer) to "MODE SET", then press OK or $\triangleright$.



4 SELECT B.E.S.T. MODE

Press $\Delta \nabla$ to move the highlight bar (pointer) to "B.E.S.T.", then press OK or $\triangleright$ to set to "ON" or "OFF".



5 RETURN TO NORMAL SCREEN

Press MENU.

Recording

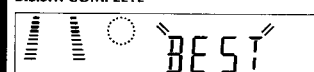
START RECORDING

Press and hold **RECORD** and press **PLAY** on the remote, or press **RECORD** on the recorder.

DURING B.E.S.T.



B.E.S.T. COMPLETE



- The recorder spends approximately 7 seconds assessing the condition of the tape, then begins recording.

NOTES:

- The B.E.S.T. system works for both SP and LP modes only after a tape has been inserted and the Record mode is first initiated. It does not work during recording.
- The B.E.S.T. system does not work while Auto Satellite Prog recording is in progress (pg. 32).
- In the case of timer recording, the B.E.S.T. system works before recording is initiated.
- Once the cassette is ejected, the B.E.S.T. data is cancelled. The next time the cassette is used for recording, B.E.S.T. is re-performed.
- Pressing the recorder's **RECORD** button while "BEST" is displayed does not start Instant Timer Recording (pg. 21).

ATTENTION

Since the B.E.S.T. system works before recording actually starts, there is a delay of approximately 7 seconds after **RECORD** and **PLAY** on the remote are pressed, or **RECORD** on the recorder is pressed. To make sure you record the desired scene or programme in its entirety, first perform the following steps:

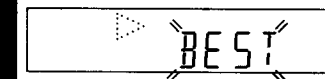
- Press and hold **PAUSE** and press **RECORD** to engage the **RECORD PAUSE** mode.
 - The recorder then automatically checks the condition of the tape and, after approximately 7 seconds, re-enters **RECORD PAUSE**.
- Press **PLAY** to start recording.
 - If you want to bypass the B.E.S.T. system and begin recording immediately, set "B.E.S.T." to "OFF" in step 4 on page 24.

Playback

The recorder assesses the quality of the tape once you initiate playback.

START PLAYBACK

Press **PLAY**.



- The recorder adjusts the playback picture quality based on the quality of the tape in use.
- B.E.S.T. is active during Auto Tracking. "BEST" appears blinking on the recorder's display panel.

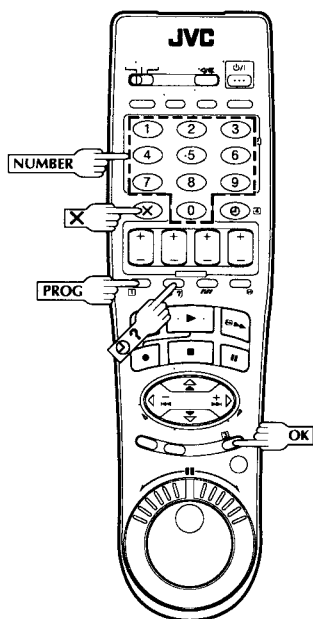
NOTES:

- When watching a tape recorded with "B.E.S.T." set to "ON", it is recommended that you leave B.E.S.T. on during playback as well.
- When watching a rental tape or one recorded on another video recorder, or when using this recorder as the player for editing, set B.E.S.T. to your preference by performing steps 1 through 5 on page 24.
- "BEST" only appears at the beginning of automatic tracking. Even though it doesn't appear after that, the B.E.S.T. function is operative.

SHOWVIEW Timer Programming

Before performing SHOWVIEW Timer Programming:

- Make sure that the recorder's built-in clock is set properly.
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).



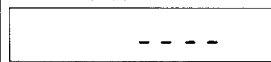
With SHOWVIEW, timer programming is greatly simplified because each TV programme has a corresponding code number which your recorder is able to recognize.

1 ACCESS SHOWVIEW SCREEN

Press **PROG**.



The front display panel looks like this:



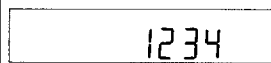
2 ENTER SHOWVIEW NUMBER

Press the **NUMBER** keys to enter the SHOWVIEW number of a programme you wish to record.

- If you make a mistake, press **X** and input the correct number.



The SHOWVIEW number you enter appears on the front display panel:

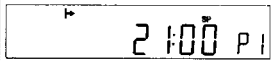
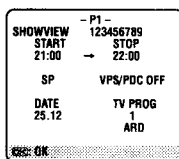


The display panel can show only a 4-digit number.

3 ACCESS SHOWVIEW PROGRAM SCREEN

Press **OK**, and the SHOWVIEW Program screen appears (if you're just starting out, "P1" appears).

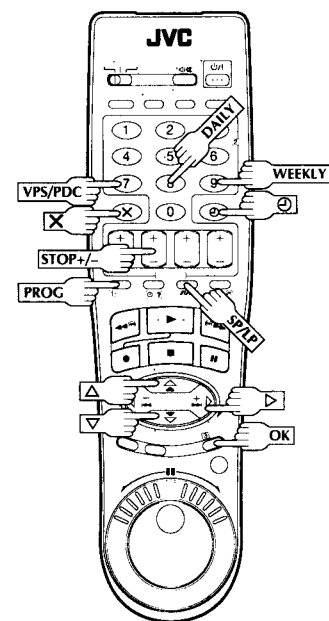
The display panel shows the programme start time. Pressing **7** changes the display to the programme stop time, then the date and channel position.



IMPORTANT

Make sure the channel position number you wish to record is displayed; if not, see "ShowView Setup" on page 57 and set the Guide Program number for that SHOWVIEW number correctly.

- If the number you entered is invalid, "ERROR" appears on the screen and "Err" appears on the display panel. Press **X** and input a valid SHOWVIEW number.
- If the "GUIDE PROG SET" screen appears, see "ATTENTION - Regarding Guide Program Number Set" on page 27.



Satellite Tuner Users

To timer-record a satellite broadcast using SHOWVIEW:

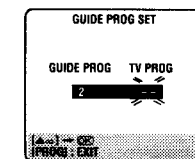
- 1 Set "AV2 SELECT" to "SAT" (see pg. 39).
- 2 Perform steps 1 - 7.
- 3 Set the satellite tuner to the appropriate channel before the selected programme begins.
- 4 Leave the satellite tuner's power on.

ATTENTION

Regarding Guide Program Number Set

"GUIDE PROG SET" appears after performing step 3 if the Guide Program number for the SHOWVIEW number you entered has not been set.

- Press the **NUMBER** keys or Δ/∇ to input the channel position number on which your recorder receives that station, then press **OK** or **7**. The SHOWVIEW program screen appears.



(Ex.) To timer-record a ZDF programme with SHOWVIEW.
* If your recorder receives ZDF on the channel position 2, press **OK** or **7** after entering "2".

SET TAPE SPEED

Press **SP/LP** (//) to set the tape speed.

SET VPS/PDC MODE

Press **VPS/PDC** to select "ON" or "OFF".

If "VPS/PDC ON" is displayed on the screen or "VPS/PDC" is lit on the display panel, VPS/PDC is set to ON. If "VPS/PDC OFF" is displayed on the screen or "VPS/PDC" is not lit on the display panel, VPS/PDC is set to OFF. (See "VPS/PDC Recording" on page 29.)

RETURN TO NORMAL SCREEN

Press **PROG** or **OK**. "PROGRAM COMPLETED" appears on the screen for about 5 seconds, then normal screen appears.

- Repeat steps 1 - 6 for each additional programme.

ENGAGE RECORDER'S TIMER MODE

Press **7**. The recorder turns off automatically and **7** appears on the display panel.

- To disengage the timer, press **7** again.

NOTES:

- To Change The Stop Time . . .
... press **STOP +/-** after pressing **OK** in step 3. You can compensate for anticipated programme schedule delays this way.
- To Timer-Record Weekly Or Daily Serials . . .
... after pressing **OK** in step 3, press **WEEKLY** (NUMBER key "9") for weekly serials or **DAILY** (NUMBER key "8") for daily serials (Monday - Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.
- You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (see pg. 30).
- It is not possible to timer-record a TV programme with a SHOWVIEW number which starts with "0".

Timer Warning

If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on screen to tell you that the recording is to start in 5 minutes.

- WARNING -
TIMER RECORDING
TO START SOON
[X]

NOTES:

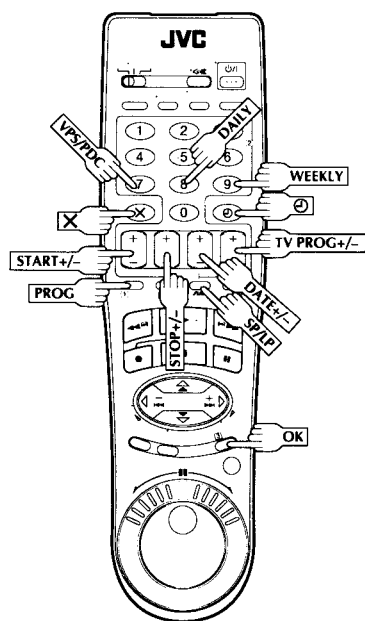
- The warning only appears if you're not in the Timer mode at that time.
- If this recorder is being used as the player for tape dubbing, the warning screen is recorded on the tape in the other video recorder.

The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press **X**.

Express Timer Programming

Before performing Express Timer Programming:

- Make sure that the recorder's built-in clock is set properly.
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).



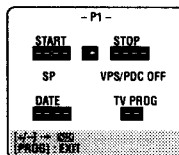
If you don't know the ShowView number for the programme you wish to record, use the following procedure to set your recorder to timer-record the programme.

1 ACCESS SHOWVIEW SCREEN

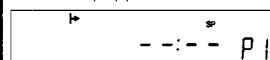
Press **PROG.**

2 ACCESS PROGRAMME SCREEN

Press **START +/-**. (If you're just starting out, "P1" appears.)



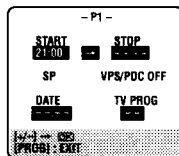
The front display panel looks like this:



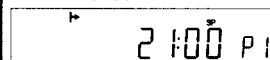
3 ENTER PROGRAMME START TIME

Press **START +/-** to enter the time you want recording to start.

- Press and hold **START +/-** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.



The front display panel looks like this:



4 ENTER PROGRAMME STOP TIME

Press **STOP +/-** to enter the time you want recording to stop.

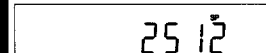
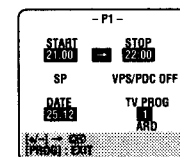
- Press and hold **STOP +/-** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

5 ENTER PROGRAMME DATE

Press **DATE +/-**. (The current date appears on screen. The date you enter appears in its place.)

6 ENTER CHANNEL POSITION

Press **TV PROG +/-**.



7 SET TAPE SPEED

Press **SP/LP (//)** to set the tape speed.

8 SET VPS/PDC MODE

Press **VPS/PDC** to select "ON" or "OFF".
If "VPS/PDC ON" is displayed on the screen or "VPS/PDC" is lit on the display panel, VPS/PDC is set to ON.
If "VPS/PDC OFF" is displayed on the screen or "VPS/PDC" is not lit on the display panel, VPS/PDC is set to OFF.
If "VPS/PDC Recording" in the right column.

9 RETURN TO NORMAL SCREEN

After confirming all information is correct, press **PROG** or **OK**. "PROGRAM COMPLETED" appears on the screen for about 5 seconds, then normal screen appears.

- Repeat steps 1 - 9 for each additional programme.

10 ENGAGE RECORDER'S TIMER MODE

Press **⊖**. The recorder turns off automatically and **⊖** appears on the display panel.

- To disengage the timer, press **⊕** again.

To Timer-Record Weekly Or Daily Serials . . .
... anytime during steps 2 through 9, press **WEEKLY** (NUMBER key "9") for weekly serials or **DAILY** (NUMBER key "8") for daily serials (Monday - Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.

NOTE:

You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (see pg. 30).

Satellite Tuner Users

To timer-record a satellite broadcast using Express Timer Programming:

- 1 Set "AV2 SELECT" to "SAT" (see pg. 39).
- 2 Perform steps 1 - 10. Enter "L-2" for the channel position in step 6.
- 3 Set the satellite tuner to the appropriate channel before the selected programme begins.
- 4 Leave the satellite tuner's power on.

VPS/PDC Recording

Now available from some TV stations, PDC (Programme Delivery Control) and VPS (Video Programme System) are service designed to assure safe, accurate timer recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over the advertised times you may have preset into the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed.

NOTES:

- When you use Express Timer Programming, set the start time (VPS or PDC time) exactly as advertised in the TV listing. A different time than advertised will result in no recording.
- VPS/PDC recording is also possible when a satellite tuner or a cable system is connected to AV2 IN/DECODER on your recorder.
- VPS/PDC recording is also possible via the AV1 IN/OUT connector.

How to check if the station being received transmits a VPS/PDC signal

- 1 Press **--** until the channel position appears on the display panel.
- 2 Hold down **START+** for about 5 seconds.
 - "VPS/PDC" appears blinking on the display panel.
 - If a VPS/PDC signal is detected from the station, "VPS/PDC" will stop blinking.
 - If no VPS/PDC signal is detected from the station, "VPS/PDC" will blink at a slower rate.
- 3 Press **--** or **START+** again to return to normal display.

Timer Warning

If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on screen to tell you that the recording is to start in 5 minutes.

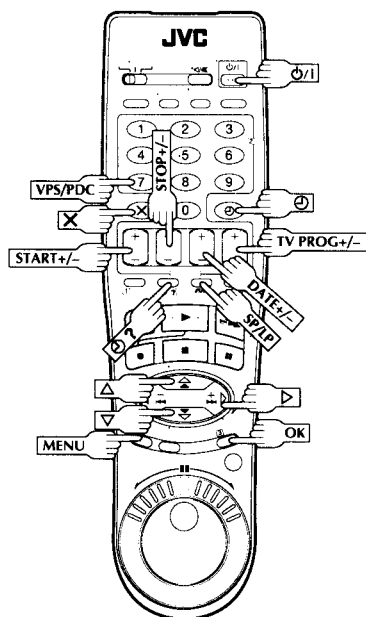
- WARNING -
TIMER RECORDING
TO START SOON
[X]

NOTES:

- The warning only appears if you're not in the Timer mode at that time.
- If this recorder is being used as the player for tape dubbing, the warning screen is recorded on the tape in the other video recorder.

The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press **X**.

Check, Cancel And Replace Programmes



1

DISENGAGE TIMER MODE

Press $\odot$, then press $\odot$ /I.

2

ACCESS PROGRAM CHECK SCREEN/DISPLAY

Press $\odot$?.

PR	START	STOP	CH	DATE
1	8:00	10:00	3	24.12
2	10:00	10:45	2	25.12
3	11:30	13:00	1	25.12
4				
5				
6				
7				
8				

① 71: NEXT

P 1 P 8

3

ACCESS PROGRAM SCREEN/DISPLAY

Press $\odot$? again to check more information. Each time you press $\odot$?, the next programme's information appears.

- P1 -	
START 8:00	STOP 10:00
SP	VPS/PDC OFF
DATE 24.12	TV PROG 3
	WDR

① 71: NEXT

8:00 P 1

- The display panel shows the programme start time. Pressing **OK** changes the display to the programme stop time, then the date and the channel position.

To cancel or replace a programme...

4

CANCEL OR REPLACE A PROGRAMME

Press **X** to cancel a programme. To replace a programme, press the appropriate button: **START+/-**, **STOP+/-**, **DATE+/-**, **TV PROG+/-**, **VPS/PDC**, **SP/LP** (///).

5

RETURN TO NORMAL SCREEN/DISPLAY

Press $\odot$? as many times as necessary. If there are still some programmes remaining, go on to step 6.

6

RETURN TO TIMER MODE

Press $\odot$.

NOTE:

You can also check the programmes on the display panel even if the recorder's power is off (unless the recorder is in the Power Save mode E pg. 11) or the recorder is in the Timer mode; however, it is not possible to cancel or replace the programmes.

Auto SP→LP Timer

If, when timer-recording in SP mode, there is not enough tape to record the entire programme, the recorder automatically switches to LP mode to allow complete recording.

For Example...

Recording a programme of 210 minutes in length onto a 180-minute tape

Approximately 150 minutes Approximately 60 minutes

SP mode	LP mode
Total 210 minutes	

Make sure you set "AUTO SP→LP TIMER" to "ON" at the Mode Set screen before the timer-recording starts.

1

ACCESS MAIN MENU SCREEN

Press **MENU**.

2

ACCESS MODE SET SCREEN

Press Δ ∇ to move the highlight bar (pointer) to "MODE SET", then press **OK** or **D**.

3

SELECT MODE

Press Δ ∇ to move the highlight bar (pointer) to "AUTO SP→LP TIMER", then press **OK** or **D** to select "ON".

HR-S9500E	HR-S9500EH
MODE SET	MODE SET
AUTO TIMER OFF	AUTO TIMER OFF
O.S.D. ON	O.S.D. ON
B.E.S.T. ON	B.E.S.T. ON
AUTO SP→LP TIMER ON	AUTO SP→LP TIMER ON
DIGITAL 3R ON	DIGITAL 3R ON
POWER SAVE OFF	S-VHS AUTO OFF
S-VHS OFF	EDIT OFF
NEXT PAGE	NEXT PAGE
[MENU]: EXIT	[MENU]: EXIT

4

RETURN TO NORMAL SCREEN

Press **MENU**.

NOTES:

- If you have programmed the recorder to timer-record 2 or more programmes, the second programme and those thereafter may not fit on the tape if you set "AUTO SP→LP TIMER" to "ON". In this case, make sure the mode is not engaged, then set the tape speed manually during timer programming.
- In order to ensure that the recording fits on the tape, this feature may leave a slight non-recorded section at the end of the tape.
- There may be some noise and sound disturbance at the point on the tape where the recorder switches from SP to LP mode.
- The Auto SP→LP Timer feature is not available during ITR (Instant Timer Recording), and the feature will not work properly with any tapes longer than E-180 or with some tapes of shorter lengths.
- If you perform timer recording with both VPS/PDC and the Auto SP→LP Timer activated, and the programme goes beyond its originally scheduled length, there may be times when the programme cannot be recorded in its entirety.

Auto Timer

When the Auto Timer is set to ON the timer is automatically engaged when the recorder power is turned off and automatically disengaged when the recorder is powered back on.

1

ACCESS MAIN MENU SCREEN

Press **MENU**.

2

ACCESS MODE SET SCREEN

Press Δ ∇ to move the highlight bar (pointer) to "MODE SET", then press **OK** or **D**.

MAIN MENU
MODE SET
AUTO CH SET
MANUAL CH SET
INITIAL SET
REC LEVEL CTL
R.A. EDIT
[MENU]: EXIT

3

SELECT MODE

Press **OK** or **D** to select either "ON" or "OFF".

HR-S9500E	HR-S9500EH
MODE SET	MODE SET
AUTO TIMER ON	AUTO TIMER ON
O.S.D. ON	O.S.D. ON
B.E.S.T. ON	B.E.S.T. ON
AUTO SP→LP TIMER OFF	AUTO SP→LP TIMER OFF
DIGITAL 3R ON	DIGITAL 3R ON
POWER SAVE OFF	S-VHS AUTO OFF
S-VHS OFF	EDIT OFF
NEXT PAGE	NEXT PAGE
[MENU]: EXIT	[MENU]: EXIT

4

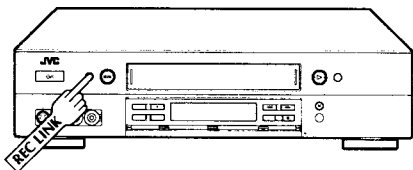
RETURN TO NORMAL SCREEN

Press **MENU**.

NOTE:

For safety, when Auto timer is set to "OFF", all other recorder functions are disabled while the Timer mode is engaged. To disengage the timer, press $\odot$.

Automatic Satellite Programme Recording



ATTENTION

- Be sure not to turn on the satellite tuner before the programme is executed; otherwise, the recorder will start recording when the satellite tuner's power is turned on.
- If you have connected another appliance other than a satellite tuner to the AV2 IN/DECODER connector, be sure not to engage the Auto Satellite Prog Rec mode; otherwise, the recorder will start recording when the connected appliance's power is turned on.
- Auto Satellite Prog recording and timer-recording cannot be done at the same time.

NOTES:

- Auto Satellite Prog recording is possible with the AV2 IN/DECODER connector only.
- For timer programming of the satellite tuner, refer to the instruction manual of the satellite tuner.
- Auto Satellite Prog recording is not possible if your satellite tuner does not have a timer.
- The button's light blinks while Auto Satellite Prog recording is in progress.
- Pressing the recorder's ψ/I button while Auto Satellite Prog recording is in progress turns off the recorder's power and disengage the Auto Satellite Prog Rec mode.
- If there are more than one satellite programme you wish to record with Auto Satellite Prog Recording, it is not possible to set the different tape speed per each; the tape speed selected in step 2 will be applicable to all the programmes for Auto Satellite Prog recording.
- The B.E.S.T. system (pg. 24) does not work while Auto Satellite Prog recording is in progress.
- Just Clock (pg. 58) does not work when the Auto Satellite Prog Rec mode is engaged.
- Depending on the type of satellite tuner, the recorder may not record a slight portion of the beginning of the programme or may record slightly longer than the actual length of the programme.
- If you engage the Auto Satellite Prog Recording mode when the satellite tuner's power is on, the recorder will not start Auto Satellite Prog recording even though the button's light blinks. When the satellite tuner shuts off once and is turned back on again, the recorder starts recording.
- When the Auto Satellite Prog Rec mode is engaged or the recorder's power is turned off after Auto Satellite Prog recording is finished, the recorder will not enter the Timer mode even though "AUTO TIMER" is set to "ON".
- After Auto Satellite Prog recording, the number of recorded programmes will not be displayed on the front display panel for the Instant ReView function (pg. 15).
- You can also record a programme from your cable system in the same way if the system has a timer.
- When you press and hold the recorder's **REC LINK** button to engage the Auto Satellite Prog Rec mode, if the **REC LINK** button does not light but instead blinks quickly even though your satellite tuner's power is off, Auto Satellite Prog Recording will not work properly with that satellite tuner.

If this is the case, perform "Express Timer Programming" (pg. 28) to timer-record a satellite programme.
 * Some satellite tuners output signals even if the power is off. Auto Satellite Prog Recording is not possible with those satellite tuners.

This facility allows you record automatically a satellite programme which is timer-programmed on your external satellite tuner. Connect a satellite tuner to the recorder's AV2 IN/DECODER connector and programme the timer on the satellite tuner; the recorder starts recording when the signals input from the satellite tuner to the AV2 IN/DECODER connector, and when there is no input signals the recorder stops recording and the power shuts off.

Before performing the following steps:

- Make sure the satellite tuner is connected to the recorder's AV2 IN/DECODER connector. (pg. 46)
- Programme the timer on the satellite tuner.
- Insert a cassette with the safety tab in place.

1 SELECT AV2 SELECT MODE

Set "AV2 SELECT" to "SAT" (pg. 39).

2 SET TAPE SPEED

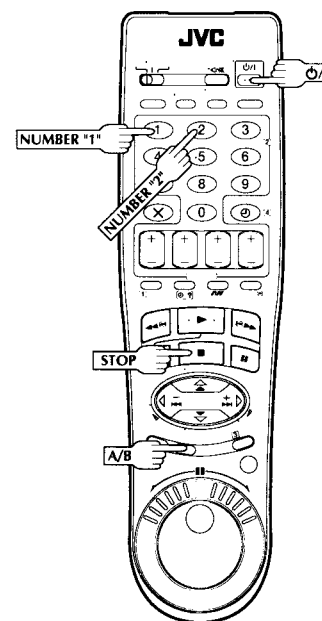
Press **SP/LP** (///) to set the tape speed.

3 ENGAGE AUTO SATELLITE PROG REC MODE

Press and hold **REC LINK** for about 2 seconds. The button lights up and the recorder turns off automatically.

- To disengage the Auto Satellite Prog Rec mode, press **REC LINK**. The button's light goes off.
- If the recorder's power is off, it is not possible to engage the Auto Satellite Prog Rec mode.

Remote Control Functions



Remote A/B Code Switching

The remote control is capable of controlling two JVC video recorders independently; one set to respond to the remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

1 REMOVE POWER SUPPLY

Unplug the mains power cord from the mains outlet.

2 SET REMOTE CONTROL CODE

While holding down **A/B** on the remote control, press the **NUMBER** key "2" and then press **STOP**.

3 RE-SUPPLY POWER

Plug the mains power cord back into the mains outlet.

4 TURN THE RECORDER ON

Press ψ/I on the remote control. The recorder will now only respond to B code signals.

NOTE:

To set the recorder back to respond to A code signals, repeat the same procedure as shown above except pressing **NUMBER** key "1" instead of "2" in step 2.

TV Multi-brand Remote Control

Your remote control can operate the basic functions of your TV set. In addition to JVC TVs, other manufacturer's TVs can also be controlled.

Before you start . . .

- Turn on the TV using its remote control.
- Set the remote control's **VCR/TV/SAT** switch to TV.

1 SET TV BRAND CODE

Refer to the chart below. While holding down ψ/I on the recorder's remote control, enter your TV's brand code using the **NUMBER** keys, then press **STOP**. Check if the TV's power goes off as it should. If it does, try other operations (⇨ step 2).

- Once you have set the remote control to operate the TV, you don't have to repeat this step until you replace your remote control's batteries.
- JVC or SAMSUNG has more than one code. If the TV does not function with one code, try entering another.

2 OPERATE TV

Press the corresponding button: ψ/I , **TV PROG +/-**, **TV/VCR**, **TV** Δ +/- (Volume), $\triangle/\square$ (Muting), **NUMBER** keys.

- For some brands of TV, you must press **ENTER** after having pressed the **NUMBER** keys.
- To return the remote to video recorder control, set its **VCR/TV/SAT** switch to VCR.

IMPORTANT

Although the provided remote control unit is compatible with JVC televisions, as well as many other models, it may not work with your TV, or in some instances, may have limited function capability.

Control Your TV Using Additional Buttons

Use the **NUMBER** keys, and the **///** button, **X** button or $\odot$ button to select the TV's channel.

- With televisions under Code 01, 02, 07, 10, 11, 14, 20, 23, 24, 25, 27, 33 or 35, the **///** button corresponds to the 1-digit/2-digit entry switching button (often labelled $-/-$) of your TV's remote control.
- With televisions under Code 01, 28, 29 or 34, the **X** button corresponds to the 10 + button, and the $\odot$ button corresponds to the 20 + button of your TV's remote control.

NOTE:

The way these buttons are used is determined by your TV. Use these buttons as instructed for your TV's remote control.

TV BRAND NAME	CODE
JVC	01, 23, 24, 25
BLAUPUNKT	19
BRANDT	26
FERGUSON	27
FINLUX	30
FUNAI	32
LG/GOLDSTAR	18
GRAETZ	28
GRUNDIG	19
HITACHI	10
ITT	28
LUXOR	28
MITSUBISHI	03
MIVAR	29
NEC	20
NOKIA	31
NORDMENDE	26
PANASONIC	11
PHILIPS	02
SABA	26
SALORA	28
SAMSUNG	02, 12, 33, 34, 35
SELECO	28
SHARP	06
SONY	07
TELEAVIA	26
TELEFUNKEN	26
THOMSON	26
TOSHIBA	14

Satellite Tuner Multi-Brand Remote Control

Your remote control can operate the basic functions of your satellite tuner set. In addition to JVC satellite tuners, other manufacturer's satellite tuners can also be controlled.

Before you start . . .

- Turn on the satellite tuner using its remote control.
- Set the remote control's **VCR/TV/SAT** switch to SAT.

1 SET SATELLITE RECEIVER BRAND CODE

Refer to the chart below. While holding down ψ/I on the recorder's remote control, enter your satellite tuner's brand code using the **NUMBER** keys, then press **STOP**. Check if the satellite tuner's power goes off as it should. If it does, try other operations (⇨ step 2).

- Once you have set the remote control to operate the satellite tuner, you don't have to repeat this step until you replace your remote control's batteries.
- Some satellite tuner brands have more than one code. If the satellite tuner does not function with one code, try entering another.

2 OPERATE SATELLITE TUNER

Press the corresponding button: ψ/I , **TV PROG +/-**, **NUMBER** keys.

- For VIDEOWAY or some brands of satellite tuner, you must press **///** after having pressed the **NUMBER** keys.
- The **NUMBER** buttons may not function with some satellite tuners.
- To return the remote to video recorder control, set its **VCR/TV/SAT** switch to VCR.

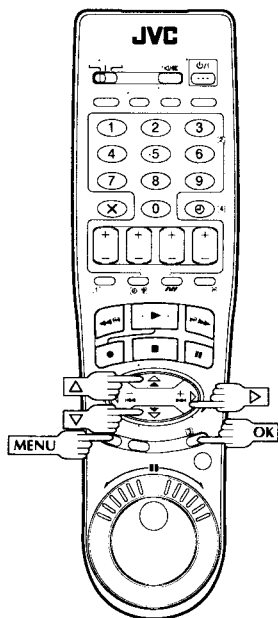
IMPORTANT

Although the provided remote control unit is compatible with JVC satellite tuners, as well as many other models, it may not work with your satellite tuner, or in some instances, may have limited function capability.

SATELLITE TUNER BRAND	CODE
JVC	72, 73
AMSTRAD	60, 61, 62, 63
BT	72
CANAL +	81
FINLUX	68
GRUNDIG	64, 65
HIRSCHMANN	64
ITT	68
JERROLD	75
KATHREIN	70, 71
LUXOR	68
MASPRO	70
NOKIA	68
PACE	65, 67
PANASONIC	74
PHILIPS	66
RFT	69
SALORA	68
SIEMENS	64
SKYMASTER	69
VIDEOWAY	76
WISI	64

Preparation For Editing

Turn on the TV and select the VIDEO channel (or AV mode).



Advantages Of S-VHS Video Recorders

You can edit from VHS to S-VHS, S-VHS to VHS, or, from S-VHS to S-VHS.

- From VHS to S-VHS: Record VHS playback signals in the S-VHS mode. Although the picture quality is inherently limited by that of the original, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to VHS: Because the picture quality of the source material is very high, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to S-VHS: All signals will be transferred with minimum degradation.

Editing Mode Setting

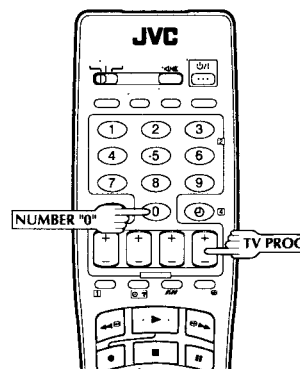
You can minimize picture degradation while editing.

- 1 ACCESS MAIN MENU SCREEN**
Press MENU.
- 2 ACCESS MODE SET SCREEN**
Move the highlight bar (pointer) to "MODE SET" by pressing Δ or ∇ , then press OK or $\triangleright$.
- 3 SELECT EDIT MODE**
Move the highlight (pointer) to "EDIT" by pressing Δ or ∇ , then press OK or $\triangleright$ to select "ON".
- 4 RETURN TO NORMAL SCREEN**
Press MENU.

NOTE:

After you finish editing, be sure to set "EDIT" back to "OFF".

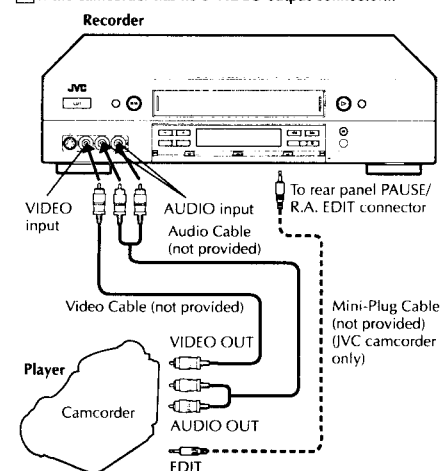
Edit From A Camcorder



NOTES:

- All necessary cables can be obtained from your dealer.
- You can also use another video recorder as the player instead of a camcorder.

A If the camcorder has no S-VIDEO output connector...



You can use a camcorder as the source player and your video recorder as the recorder.

MAKE CONNECTIONS

- A** If the camcorder has no S-VIDEO output connector...
... connect the camcorder's AUDIO/VIDEO OUT connectors to the recorder's front panel AUDIO/VIDEO input connectors.
- B** If the camcorder has an S-VIDEO output connector...
... connect the camcorder's S-VIDEO OUT and AUDIO OUT connectors to the recorder's front panel S-VIDEO and AUDIO input connectors.

- When using a monaural camcorder, connect its AUDIO OUT connector to the AUDIO L input connector on your recorder.
- When a Master Edit Control-equipped JVC camcorder is used, the camcorder is capable of controlling the recorder. Refer to the camcorder's instruction manual for operating procedure.

SET RECORDER'S INPUT MODE

Press NUMBER key "0" and/or TV PROG to select "F-1" for the AUDIO/VIDEO input connectors, or "S-1" for the AUDIO/S-VIDEO input connectors, depending on the connectors being used.

SET EDIT MODE

See "Editing Mode Setting" on page 36.

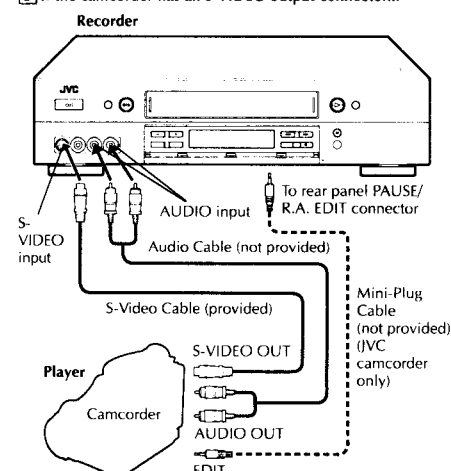
START CAMCORDER

Engage its Play mode.

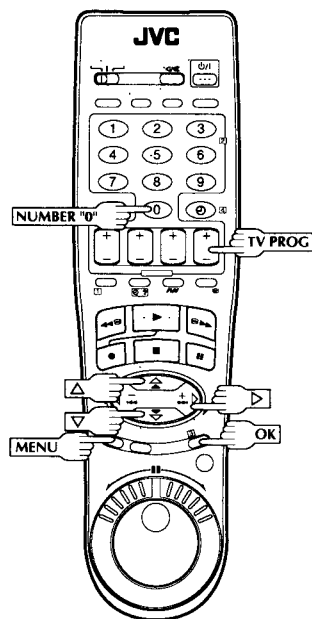
START RECORDER

Engage its Record mode.

B If the camcorder has an S-VIDEO output connector...



Edit To Or From Another Video Recorder



You can use your video recorder as the source player or as the recording deck.

1

MAKE CONNECTIONS

Connect the player's 21-pin SCART connector to the recorder's 21-pin SCART connector as illustrated on page 39.

A When Using Your Video Recorder As The Source Player ...

... connect its AV1 IN/OUT connector to the recording deck.

B When Using Your Video Recorder As The Recording Deck ...

... connect its AV2 IN/DECODER or AV1 IN/OUT connector to the source player.

2

SET RECORDING DECK'S INPUT MODE

Set to AUX. With this video recorder, press **NUMBER** key "0" and/or **TV PROG** to select "L-1" for the AV1 IN/OUT connector, or "L-2" for the AV2 IN/DECODER connector, depending on the connector being used.

• When using the AV2 IN/DECODER connector, make sure "AV2 SELECT" is set to "VIDEO" or "S-VIDEO" (see pg. 39).

3

SET EDIT MODE

See "Editing Mode Setting" on page 36.

4

START SOURCE PLAYER

Engage its Play mode.

5

START RECORDING DECK

Engage its Record mode.

NOTES:

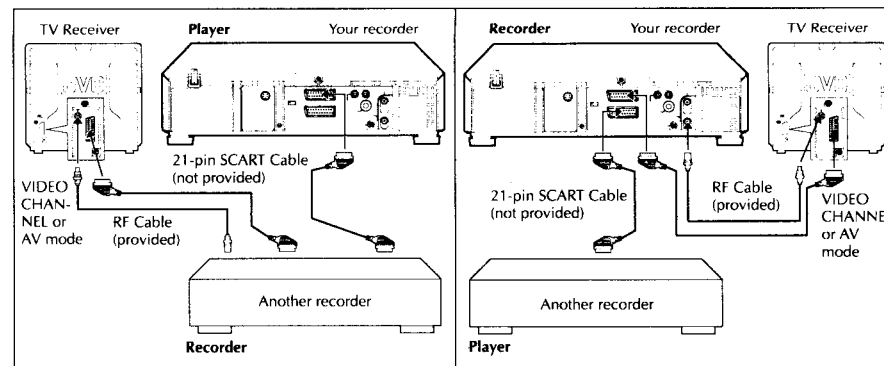
- All necessary cables can be obtained from your dealer.
- When you use this recorder as the player for editing, be sure to set "O.S.D." to "OFF" before starting (see pg. 10).
- If you are using another recorder with S-Video and Audio input/output connectors, you can connect those connectors to this recorder's S-VIDEO IN/S OUT and AUDIO IN/OUT connectors.

When Using Your Video Recorder As The Source Player ...

... connect its rear panel S OUT and AUDIO OUT connectors to the recording deck's S-Video and Audio input connectors.

When Using Your Video Recorder As The Recording Deck ...

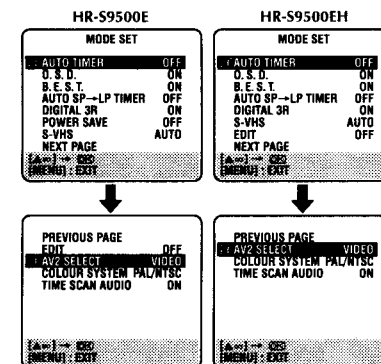
... connect its front panel S-VIDEO and AUDIO input connectors to the source player's S-Video and Audio output connectors. Then, set the recorder's input mode to "S-1".



AV2 SELECT Setting

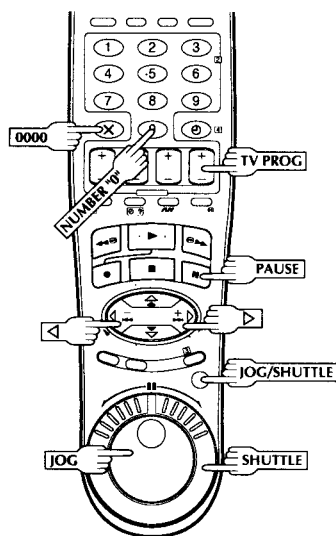
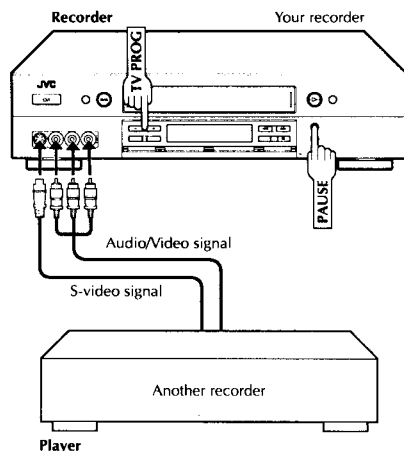
Set "AV2 SELECT" to the appropriate mode depending on the type of unit connected to the rear panel AV2 IN/DECODER connector of this recorder.

- Press **MENU** to access the Main Menu screen.
- Press Δ to move the highlight bar (pointer) to "MODE SET", then press **OK** or $\triangleright$.
- Press ∇ to move the highlight bar (pointer) to "AV2 SELECT".
- Press **OK** or $\triangleright$ to select one of the following:
 - a-VIDEO** : If a connected device's output is compatible only with regular video signals, set "AV2 SELECT" to "VIDEO".
 - b-S-VIDEO** : If a connected device's output is compatible with Y/C signals, set "AV2 SELECT" to "S-VIDEO". This setting will let you take advantage of higher-quality S-VHS pictures.
 - c-DECODER** : If a decoder is connected to the AV2 IN/DECODER connector, set "AV2 SELECT" to "DECODER". (See page 47 as well.)
 - d-SAT** : If a satellite tuner is connected to the AV2 IN/DECODER connector, set "AV2 SELECT" to "SAT". (See page 46 as well.)
- Press **MENU** to return to normal screen.

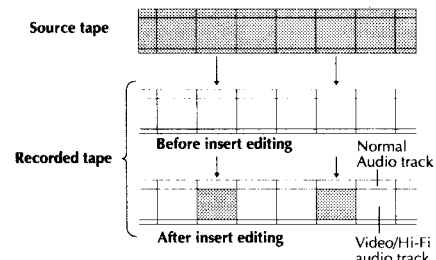


- If you are using a decoder or satellite tuner, be sure to set "AV2 SELECT" back to "DECODER" or "SAT" after editing.
- If you're not using a decoder or satellite tuner, leave "AV2 SELECT" set to "VIDEO" or "S-VIDEO".
- The default setting is "VIDEO"; if the recorder's memory backup has expired due to a power cut or because the AC was removed from the recorder, "VIDEO" will be automatically selected when the power is restored to the recorder. If you are using a decoder or satellite tuner, be sure to set "AV2 SELECT" back to "DECODER" or "SAT".

Insert Editing



Insert editing replaces part of the recorded scene with new material. Both the picture and Hi-Fi audio soundtrack are replaced with new ones, while the normal audio soundtrack remains unchanged. If you wish to change the normal audio track as well, use the audio dubbing function simultaneously. Use your video recorder as the recorder.



MAKE CONNECTIONS

Connect the player's VIDEO OUT or S-VIDEO OUT and AUDIO OUT connectors to your recorder's VIDEO or S-VIDEO and AUDIO connectors on the front panel.

SET INPUT MODE

Press **NUMBER** key "0" and/or **TV PROG** so that "F-1" for the VIDEO/AUDIO connectors or "S-1" for S-VIDEO/AUDIO connectors appears in place of a channel number.

LOCATE END POINT

Load the recording cassette into your recorder, and play it back to determine the edit-out point (the end of the segment to be replaced) using the **SHUTTLE** ring or the **JOG** dial or pressing **◀▶** and **PAUSE**.

- To use the **JOG** dial/**SHUTTLE** ring, first press the **JOG/SHUTTLE** button on the remote control so that the button lights up.

RESET THE COUNTER

Press **0000** to change the counter display to "0:00:00".

LOCATE START POINT

Determine the edit-in point (the beginning of the segment to be replaced) using the **SHUTTLE** ring or the **JOG** dial or pressing **◀▶** and **PAUSE**.

- Be sure to engage the Still mode at the edit-in point.

ENGAGE INSERT EDITING

Press **INSERT**.

- Your recorder enters the Insert-Pause mode. ("I" and "E" light up on the front display panel.)
- The TV screen changes from the still picture to the input source you are going to record.

START EDITING

Load the source cassette and play back the segment that is to be inserted. When you reach the start of the section of the source tape that you wish to insert, press **PLAY** to start the tape in your recorder; Insert Editing begins at this point.

- "I" and "E" are displayed on the front display panel.

END INSERT EDITING

At counter "0:00:00", Insert Editing will stop automatically while the tape continues running in the Play mode. If you wish to stop Insert Editing before the specified edit-out point, press **0000**.

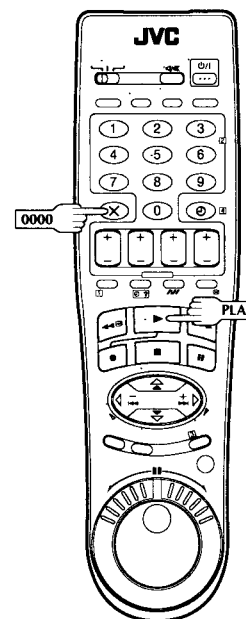
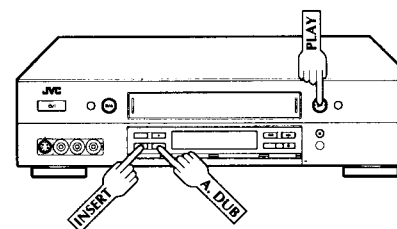
FOR AV INSERT EDITING

If you want to replace the picture, Hi-Fi audio soundtrack and normal audio soundtrack all at the same time...

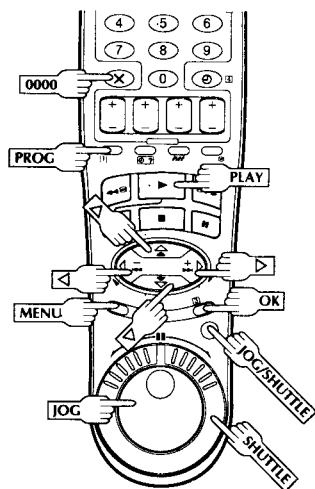
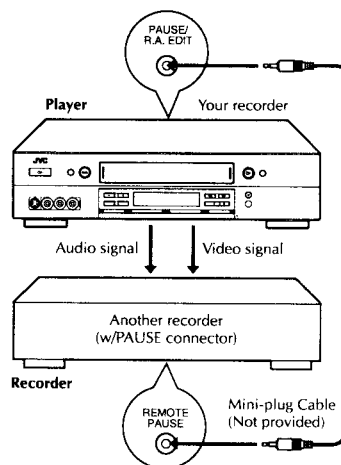
... In step 6 above, after you press **INSERT**, press **A. DUB** also. ("I" and "E" blink and "I" lights up on the front display panel.)

NOTES:

- Suitable leads can be obtained from your dealer.
- Insert editing is not possible with cassettes whose safety tab has been removed.
- When insert editing is performed on a tape that has been recorded on another video recorder, the inserted portion may appear distorted.
- In insert editing, the recording speed (SP/LP) is determined by the previous recording to be replaced. If the previous recording's speed changes within a single edit, the inserted picture will be distorted at the switching point.
- A small portion of the recording which precedes an insert edit may become erased.
- Insert Editing is also possible using the rear panel AV1 IN/OUT or AV2 IN/DECODER connector. When using these connectors, make sure to select the correct input mode in step 2.



Random Assemble Editing



This function makes it easier to create edited videos when your video recorder is used as the source player in combination with another JVC video recorder equipped with a Remote PAUSE Connector. You can pre-program up to 8 scenes or "cuts" for automatic editing in the sequence you have specified.

You can also perform Random Assemble Editing with a second non-JVC recorder. See pg. 43

1 MAKE CONNECTIONS

Connect your recorder's AV1 IN/OUT or S OUT/AUDIO OUT connectors to the VIDEO IN and AUDIO IN connectors on the recording deck, and connect your recorder's PAUSE/R.A. EDIT connector to the PAUSE connector on the recording deck.

- If the recording deck doesn't have a PAUSE connector, connect to the R.A. EDIT connector instead.
- The Mini-plug cable is a mono 3.5 mm mini-plug to mono 3.5 mm mini-plug connector.

2 PREPARE FOR EDITING

Insert the cassette to be recorded on into the recorder and set the recorder's input mode.

3 LOAD SOURCE CASSETTE

Insert the source cassette into your recorder.

4 SET EDIT MODE

See "Editing Mode Setting" on page 36.

5 START SOURCE PLAYBACK

Press **PLAY**.

6 ACCESS MAIN MENU SCREEN

Press **MENU**.

7 ACCESS R.A. EDIT SCREEN

Press $\Delta \nabla$ to move the highlight bar (pointer) to "R.A.EDIT", then press **OK** or **D**.

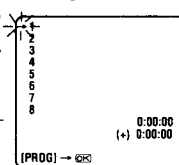
- The screen is superimposed on the video playback in step 8.

8

LOCATE EDIT-IN POINT

Find the point on the source tape from where you want the edited scene to begin by pressing $\Delta \triangleright$ or using the **SHUTTLE** ring or the **JOG** dial, then press **PROG**.

- The edit-in point is registered in memory and appears on the screen.
- To use the **JOG** dial/**SHUTTLE** ring, first press the **JOG/SHUTTLE** button on the remote control so that the button lights up.

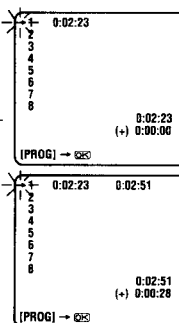


9

LOCATE EDIT-OUT POINT

Find the point where you want the edited scene to end by pressing $\Delta \triangleright$ or using the **SHUTTLE** ring or the **JOG** dial, then press **PROG**.

- The edit-out point is registered in memory and appears on the screen.
- The total time of the edited scenes is displayed to the right of "+".
- Repeat steps 8 and 9 for each additional scene.



10

PREPARE RECORDING DECK

Engage its Record-Standby mode.

11

START R.A. EDIT

Press **OK**.

- Automatic editing begins; all the specified scenes are copied to the recording deck in the order they were registered.
- The on-screen display remains while your recorder searches for each scene (blinking cursor indicates scene currently being searched for), but disappears during actual editing.
- During scene search, the recording deck automatically enters its Record-Standby mode.
- When all registered scenes have been edited, your recorder enters the Pause mode, the recording deck enters its Record-Standby mode, and the cursor blinks at the next available number.

12

END R.A. EDIT

Press **MENU** to return to the normal screen, and engage the Stop mode for your recorder and for the recording deck.

NOTES:

- You can also monitor the sound when searching for scenes you want to edit in steps 8 - 9. Since you can hear the soundtrack during selection, you can avoid abrupt or unnatural sounding scene-to-scene transitions. The sound that is heard, however, is not TimeScan Audio.
- When editing, there may be a discrepancy of about 2 seconds on the source tape between the locations you chose as edit-in/-out points and the locations your recorder recognizes as those points.
- For any scene, the edit-out point must have a counter reading that is at least 1 second after the corresponding edit-in point. Any less than 1 second and the edit-out point will not be registered.
- Since the source recorder prerolls during Random Assemble Editing, there must be at least 15 seconds worth of recorded material prior to any edit-in point on the source tape.
- If the search time for an edit-in point exceeds 5 minutes, the recording deck enters its Stop mode and editing will not take place.
- During steps 8 and 9 — if you engage the Pause mode while registering edit-in and -out points in the R.A. Edit screen, the characters in the on-screen display may become distorted. This is normal.

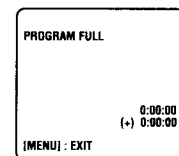
To Make Corrections . . .

- . . . during step 8 or 9, you can cancel registered in and out points by pressing **0000** on the remote control. Each time you press, the preceding point is erased.
- If, for example, you have registered 5 sets of in and out points and want to reset the first set, you have to press **0000** until all points after the first set have been erased. Reenter them after you've repaired the first set of points.

Memory Capacity

Random Assemble Editing shares memory space with the recorder's timer. If there are programs occupied by timer-recording data, those spaces cannot be used to register edit-in and -out points — meaning you won't be able to edit 8 scenes.

- When all 8 programs are full, "PROGRAM FULL" appears on the R.A. EDIT screen.
- To cancel a program, see page 30.



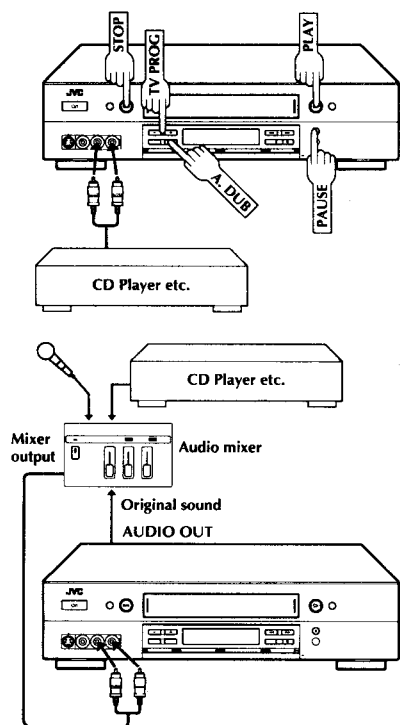
RM-V704U Multi-Brand R.A. Edit Controller (Not provided)

By connecting this controller to your recorder's R.A. EDIT connector, you can perform Random Assemble Editing in combination with a second non-JVC video recorder. The controller is compatible with various major recorder brands. For compatible systems and availability, please consult your JVC dealer.

NOTE:

Although the RM-V704U is designed to operate the recording deck, it may not work with some recorders, or may have limited function capability.

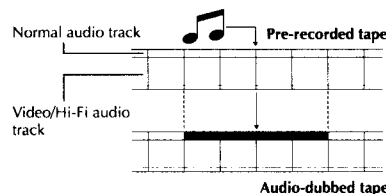
Audio Dubbing



NOTES:

- When monitoring the sound during Audio Dubbing, the normal soundtrack is automatically selected. If you wish to hear the mixed sound (Hi-Fi + Normal soundtracks), press **AUDIO** on the remote control to select **[D] + [L] (L+R)+NORM** (pg. 17).
- Audio dubbing stops automatically when the counter reaches "0:00:00", and the recorder enters the Play mode. Check the counter reading before dubbing.
- Audio dubbing is also possible using the rear panel AV1 IN/OUT or AV2 IN/DECODER connector. When using these connectors, make sure to select the correct input mode in step 2.
- Audio dubbing cannot be performed on a cassette that has had its record safety tab removed.
- When playing back an audio-dubbed tape, press **AUDIO** on the remote control to select the soundtrack you wish to hear (pg. 17).

Audio dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack.



MAKE CONNECTIONS

Connect an audio component to the AUDIO L + R connectors on the recorder's front panel.

- When connecting monaural equipment, use only the recorder's AUDIO L connector.

SET INPUT MODE

Press **NUMBER** key "0" and/or **TV PROG** so that "F-1" or "S-1" appears in place of a channel number.

LOCATE START POINT

Press **PLAY** to start playback of the tape in your recorder, and press **PAUSE** when you find the point where you want to start dubbing.

ENGAGE AUDIO DUBBING

Press **A. DUB**.

- Your recorder enters the Audio Dubbing Pause mode. ("D" blinks, "D" and "D" light up on the front display panel.)
- To perform audio dubbing with audio mixing, press **AUDIO** on the remote control to select **[D] + [L] (L+R)** at this point.
* Audio dubbing with audio mixing is not possible if you're using a monaural audio component, or if you don't have an audio mixer.

START DUBBING

Engage the audio component's Play mode, then press **PLAY** to start the tape in your recorder. Audio dubbing begins at this point.

- "D" blinks and "D" is displayed on the front display panel.
- To stop dubbing temporarily, press **PAUSE**. Press **PLAY** to resume dubbing.

END AUDIO DUBBING

Press **STOP** to stop the tape in your recorder, and engage the audio component's Stop mode.

J Terminal (JLIP(Joint Level Interface Protocol) Connector)

The J Terminal is used to connect the recorder to a personal computer or similar device to allow computerized control of the recorder during editing and certain other operations.

Examples:

With the optional JLIP VIDEO CAPTURE BOX GV-CB3E:

- Enables Random Assemble Editing of up to 99 segments, using this recorder as the playback unit.
- Allows you to capture still images from the recorder into a personal computer.

For further details consult your nearest JVC dealer.

JLIP ID Number

Your recorder has its own JLIP ID number. This ID number must be unique when your recorder is connected to another device via its J terminal. The ID Number is preset to "1" at the factory. You can change this number to any number between "1" and "99". If it is necessary to change the JLIP ID number perform the following steps.

ACCESS MAIN MENU SCREEN

Press **MENU**.

ACCESS INITIAL SET SCREEN

Press **Δ** to move the highlight bar (pointer) to "INITIAL SET", then press **OK** or **▷**.

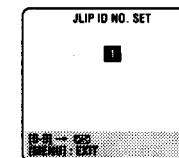
ACCESS JLIP ID NO. SET SCREEN

Press **Δ** and move the highlight bar (pointer) to "JLIP ID NO. SET", then press **OK** or **▷**.



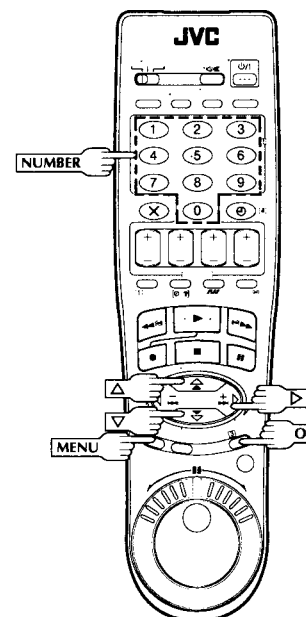
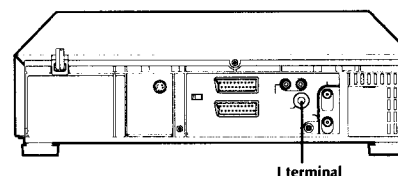
SET JLIP ID NUMBER

Press **NUMBER** keys to enter the desired ID number.



RETURN TO NORMAL SCREEN

Press **OK**.

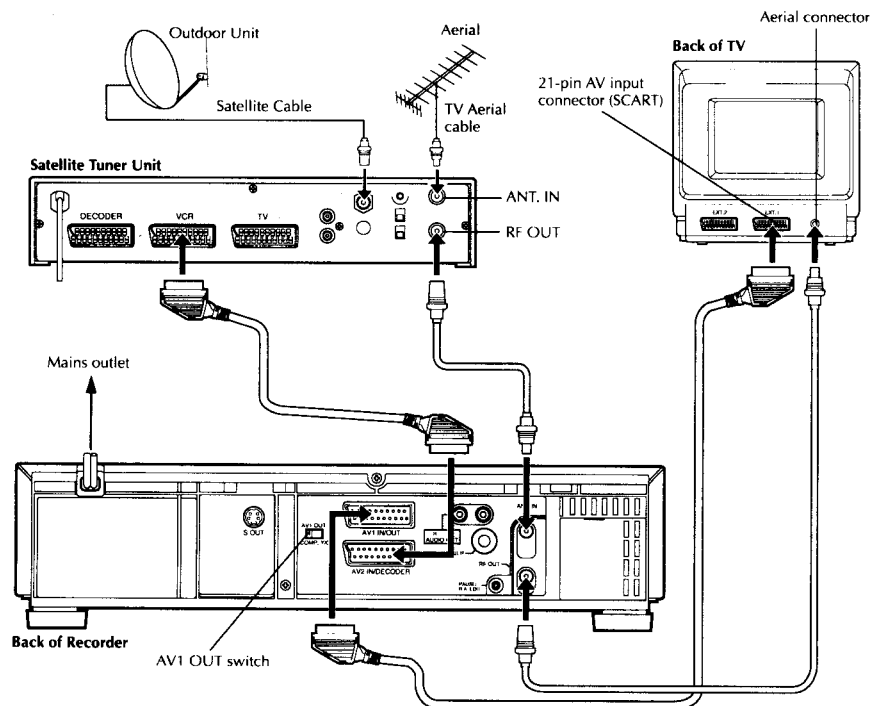


ATTENTION

After you change your recorder's JLIP ID number, control signal transmission may not work properly. If this happens, turn off the recorder's power off once, then turn it back on and try again.

Connection To A Satellite Tuner

The AV2 IN/DECODER connector on the rear panel of your recorder allows simple connection to a satellite tuner.



IMPORTANT

Set "AV2 SELECT" to "SAT" on the Mode Set screen (pg. 39).

If you set "AV2 SELECT" to "SAT"...

- It is possible to view a satellite programme with the TV set to its AV mode even if the recorder's power is turned off.
- The AV2 IN/DECODER connector's input is the same signal that is controlled by the rear panel AV1 OUT switch as shown below:
 - If both the satellite tuner and the TV are compatible with the Y/C signal, set the AV1 OUT switch to Y/C in order to take advantage of high-quality S-VHS pictures.
 - If the satellite tuner and/or the TV are/is not compatible with the Y/C signal, set the AV1 OUT switch to COMP.

AV2 SELECT setting on the MODE SET screen	Rear panel AV1 OUT switch	AV2 IN/DECODER connector input signal
SAT	COMP.	Composite signal*
	Y/C	Y/C signal**

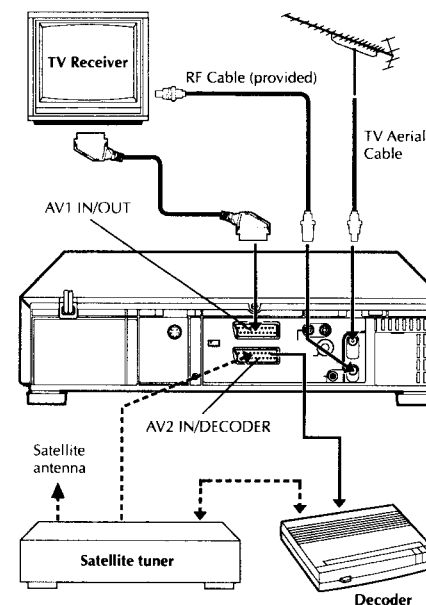
* The composite signal is a regular video signal.

** The Y/C signal is a signal in which the luminance and chrominance signals are separated.

NOTE:

Refer to the instructions supplied with your satellite tuner.

Connecting/Using A Decoder



The AV2 IN/DECODER connector can be used as an input terminal for an external decoder (descrambler). Simply connect a decoder and you can enjoy the variety of programming that is available through scrambled channels.

1 SELECT INPUT MODE

Set "AV2 SELECT" to "DECODER". (pg. 39)

2 CONNECT DECODER

Connect your recorder's AV2 IN/DECODER connector to the decoder's Euroconnector using a 21-pin SCART cable.

3 SET TUNER

Perform the procedure as described in "When Receiving A Scrambled Broadcast" on page 53.

NOTE:

When Connecting A Satellite Tuner...

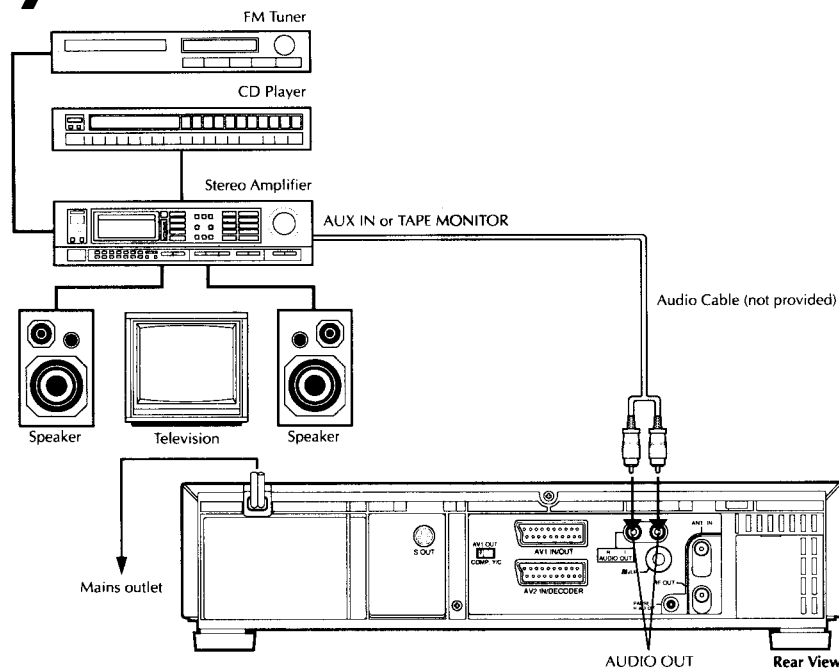
... if you don't have a decoder connect the satellite tuner directly to the video recorder's AV2 IN/DECODER connector.
 ... if you have a decoder, first connect the decoder to the decoder input of the satellite tuner, then connect the satellite tuner's output to the recorder's AV2 IN/DECODER connector. Refer to the instruction book for the satellite tuner and decoder. See page 46 as well for the connections.

... set "AV2 SELECT" to "SAT". (pg. 39)

... to view a programme via the satellite tuner, select L-2 mode by pressing **NUMBER** keys and/or **TV PROG** so that "L-2" appears on the display panel.

Connecting/ Using A Stereo System

These instructions enable you to connect your video recorder to your Hi-Fi stereo system (if you have one) and listen to the soundtrack through the stereo.



1 MAKE CONNECTIONS

Connect the AUDIO OUT L and R connectors on your video recorder to the AUX IN or TAPE MONITOR terminals on your stereo system's receiver or amplifier.

NOTES:

- When connecting your recorder's audio output connectors to a stereo amplifier, make sure you connect L and R correctly.
- If stereo or bilingual TV broadcasts are receivable in your area, this recorder can record them independently of the TV set and play them back through the connected stereo system.
- When listening to sound through the connected stereo system, turn the TV's volume down completely.

CAUTIONS:

- This recorder has a dynamic range of more than 80 dB with regards to its Hi-Fi audio capability. It is recommended that you check the maximum level if you are going to listen to the Hi-Fi audio signals through a stereo amplifier. A sudden surge in the input level to the speakers may damage them.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set as this can adversely affect the video playback picture.

Video Channel Set

Video Channel (RF Output Channel) is the channel on which your TV receives picture and sound signals from the video recorder through the RF cable.

IMPORTANT

Perform the following steps only if —

- Video Channel Set has not been done correctly by the Auto Set Up function (pg. 6).
- interference appears in the TV picture after you have moved to a different area or a new station has started broadcasting in your area.
- you change the connection between your recorder and TV from RF connection to AV or S-VIDEO connection, or vice versa.

If you have connected the video recorder to your TV via both the provided RF cable and a 21-pin SCART cable (AV connection), or via the provided RF cable, the provided S-Video cable and an audio cable (S-VIDEO connection), since you do not need the video channel you have to set the video channel to off.

If you have connected the video recorder to your TV via the provided RF cable only (RF connection), you have to set the correct video channel.

Before performing the following steps, make sure the recorder's power is off and there is no cassette inserted in the recorder.

ACCESS VIDEO CHANNEL SET MODE

- 1 Hold down STOP (■/▲) on the recorder until the display panel shows the following.

OUT 36

SET VIDEO CHANNEL

With AV Connection or S-VIDEO Connection

Press TV PROG — until the display panel shows "OUT—".

OUT —

- Now the video channel is set to off.

With RF Connection

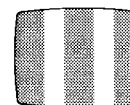
Press TV PROG + or — to set the video recorder to a vacant channel between 22 and 69 which is not occupied by any local station in your area.

(Ex.) If channel 50 is available in your area

OUT 50

Then set your TV to UHF channel 50.

- If the two vertical white bars appear clearly on the screen as shown to the right, go to step 3.
- If the two vertical white bars do not appear clearly, re-set the video recorder to another vacant channel and try again.



NOTES:

- If you set the video recorder to a channel which is occupied by a local station or has neighbouring channels that are occupied by local stations, the picture reception quality will be affected and some interference noise will appear on the TV screen. Be sure to select a vacant channel which has no broadcast on neighbouring channels.
- If you cannot obtain the two vertical white bars clearly with any channel between 22 and 69, consult your JVC dealer.

EXIT VIDEO CHANNEL SET MODE

- 3 Press OK on the remote control.

With AV Connection or S-VIDEO Connection:

To view picture signals from the video recorder, set your TV to its AV mode.

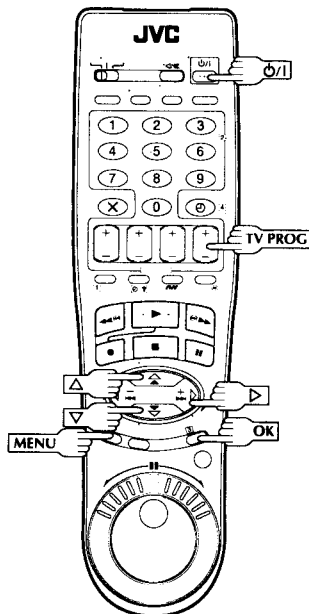
With RF Connection:

The channel on which the screen in step 2 appears clearly is your video channel.

To view picture signals from the video recorder, set your TV to the Video Channel.

Tuner Set

Turn on the TV and select the VIDEO channel (or AV mode).



IMPORTANT

Perform the following steps only if —
— Auto Channel Set has not been set correctly by Auto Set Up function (pg. 6).
— you have moved to a different area or if a new station starts broadcasting in your area.

Your recorder needs to memorize all necessary stations in channel positions in order to record TV programmes. Auto Channel Set automatically assigns all receivable stations in your area to call them up by using the TV PROG buttons without going through any vacant channel.

Auto Channel Set

TURN ON THE RECORDER

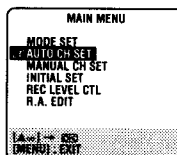
Press ψ/I .

ACCESS MAIN MENU SCREEN

Press MENU.

ACCESS COUNTRY SET SCREEN

Press $\Delta \nabla$ to move the highlight bar (pointer) to "AUTO CH SET", then press OK or $\triangleright$.

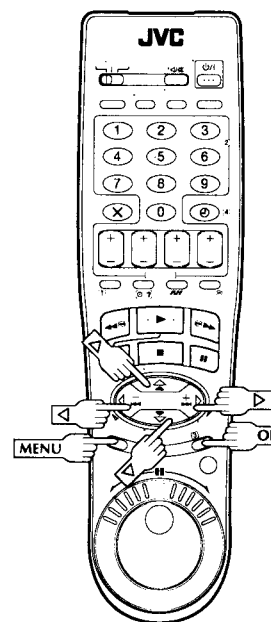


SELECT COUNTRY

Press $\Delta \nabla$ to move the highlight bar (pointer) to your country's name, then press OK or $\triangleright$.

SELECT LANGUAGE

Press $\Delta \nabla$ to move the highlight bar (pointer) to the language of your choice.



IMPORTANT

- In certain reception conditions, station names may not be stored correctly, and auto Guide Program Number Set may not work properly. If the Guide Program numbers are not set properly, when you timer-record a TV programme using ShowView, the recorder will record a TV programme of a different station. When programming the timer using ShowView, be sure to check whether the channel position on which your recorder receives the broadcasting station you wish to record is selected (pg. 26, "ShowView Timer Programming").
- Your video recorder memorizes all detected stations even if reception of some of them is poor. In these cases picture quality may be poor. To delete those stations with an unacceptable picture press "Delete A Channel" on page 53.

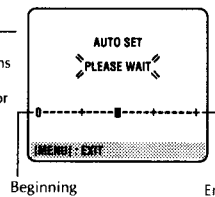
NOTES:

- Fine tuning is performed automatically during Auto Channel Set. If you want to perform it manually, refer to page 56.
- If you perform Auto Channel Set when the aerial cable is not connected properly, "SCAN COMPLETED -NO SIGNAL-" appears on the screen in step 7. When this happens, make sure of the aerial connection and press OK; Auto Channel Set will take place again.

PERFORM AUTO CHANNEL SET

Press OK or $\triangleright$.

- The Auto Set screen appears, and remains on screen while the recorder searches for receivable stations. As Auto Channel Set progresses, the "■" mark on the screen moves from Beginning



Wait until the screen as shown in step 7 appears.

VIEW CONFIRMATION SCREEN

After "SCAN COMPLETED" is displayed on the screen for about 5 seconds, the Confirmation screen looking like the one to the right appears. The stations your recorder located appear on a Confirmation screen — channel positions (PR), channels (CH) and station names (ID — pg. 55). The blueback screen and the programme currently being broadcast by the blinking station appear alternately for 8 seconds each. To view the next page, use the $\Delta \nabla \triangleleft \triangleright$ button on the remote control.

PR	CH	ID	PR	CH	ID
01	C33	RAI1	08	C20	ESP
02	C34	RAI1	09	C21	WEST
03	C10	ZDF	10	C24	SAT1
04	C25	RAI1	11	C23	OSF
05	C31	BBC1	12	----	----
06	C32	BBC2	13	----	----
07	C33	SAT	14	----	----

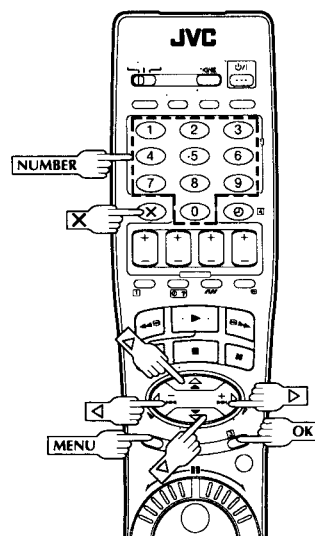
C: Cable

- The stations located in the selected country appear at the top of the list.
- The Guide Program numbers will also be set automatically during Auto Channel Set.

RETURN TO NORMAL SCREEN

Press MENU.

- Using the Confirmation screen, you can skip or add channel positions, enter station names and perform other operations. Refer to pages 52 – 56 for the procedures.
- Depending on reception conditions, the stations may not be stored in order, and the station names may not be stored correctly.
- For information on scrambled broadcasts, refer to page 53.



Storing Channels Manually

Store channels that were not stored during Auto Set Up (pg. 6) or Auto Channel Set (pg. 50).

1 ACCESS MAIN MENU

Press **MENU**.

2 ACCESS CONFIRMATION SCREEN

Press $\Delta \nabla$ to move the highlight bar (pointer) to "MANUAL CH SET", then press **OK** or $\triangleright$. The Confirmation screen appears.

3 SELECT POSITION

Press $\Delta \nabla \triangleleft \triangleright$ until an open position in which you want to store a channel begins blinking, then press **OK**. The Manual Channel Set screen appears.

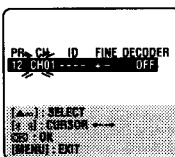
(Ex.) To store in position 12.

PR	CH	ID	PR	CH	ID
01	25	ARD	08	C26	E-SP
02	C08	SKY1	09	55	WEST
03	10	ZDF	10	C24	SAT1
04	C05	RAI1	11	C23	DSF
05	C01	BBC1	12	---	---
06	C32	BBC2	13	---	---
07	C33	3SAT	14	---	---

The blueback screen and the programme currently being broadcast by the selected channel appear alternately for 8 seconds each.

4 SELECT BAND

Press $\Delta \nabla$ to change the band between CH (regular) and CC (cable), then press $\triangleright$.



The blueback screen and the programme currently being broadcast by the selected channel appear alternately for 8 seconds each.

5 INPUT CHANNEL

Press the **NUMBER** keys to input the channel number you want to store.

- Input "0" before any single number entries.
- To input the registered station name (ID - pg. 55), press $\triangleright$ until "----" (ID setting) begins blinking, then press $\Delta \nabla$.
- For fine tuning adjustment, press $\triangleright$ until "+/-" begins blinking, then press $\Delta \nabla$. While tuning, "+" or "-" appears.
- When storing a channel that sends scrambled broadcasts, press $\triangleright$ until "OFF" (Decoder setting) blinks, then press $\Delta \nabla$ to set "DECODER" to "ON" ("OFF" is the default setting).
- When "AV2 SELECT" is set to "VIDEO", "S-VIDEO", or "SAT", the "DECODER" setting cannot be changed (pg. 39).

6 ENTER NEW CHANNEL INFORMATION

Press **OK** and the Confirmation screen appears.

- Repeat steps 3 through 6 as necessary.

7 CLOSE CONFIRMATION SCREEN

Press **MENU**.

- To change positions, see "Change Station Channel Position" (pg. 53).
- If you wish to set station names other than the ones registered in your recorder, see "Set Stations (B)" on page 54.

ATTENTION

After you have stored channels manually, be sure to perform Guide Program Number Set (pg. 57) in order to get proper results from ShowView timer recording.

Delete A Channel

Perform steps 1 and 2 of "Storing Channels Manually" on page 52 to access the Confirmation screen before continuing.

1 SELECT ITEM

Press $\Delta \nabla \triangleleft \triangleright$ until the item you want to delete begins blinking.

2 DELETE CHANNEL

Press **X**.

- The item directly beneath the cancelled one moves up one line.
- Repeat steps 1 and 2 as necessary.

3 CLOSE CONFIRMATION SCREEN

Press **MENU**.

Change Station Channel Position

Perform steps 1 and 2 of "Storing Channels Manually" on page 52 to access the Confirmation screen before continuing.

1 SELECT ITEM

Press $\Delta \nabla \triangleleft \triangleright$ until the item you want to move begins blinking. Then press **OK** and the station name (ID) and its channel (CH) number begin blinking.

2 SELECT NEW POSITION

Press $\Delta \nabla \triangleleft \triangleright$ to move the station to the new channel position, then press **OK**.

Example: If you moved the station in position 4 to position 2, the stations originally in positions 2 and 3 each move down one space.

PR	CH	ID	PR	CH	ID	PR	CH	ID	PR	CH	ID
01	25	ARD	08	C26	E-SP	01	25	ARD	08	C26	E-SP
02	C08	SKY1	09	55	WEST	02	C05	RAI1	09	55	WEST
03	10	ZDF	10	C24	SAT1	03	C08	SKY1	10	C24	SAT1
04	C05	RAI1	11	C23	DSF	04	10	ZDF	11	C23	DSF
05	C31	BBC1	12	C25	ESPN	05	C31	BBC1	12	C25	ESPN
06	C32	BBC2	13	---	---	06	C32	BBC2	13	---	---
07	C33	3SAT	14	---	---	07	C33	3SAT	14	---	---

- Repeat steps 1 and 2 as necessary.

3 CLOSE CONFIRMATION SCREEN

Press **MENU**.

ATTENTION

After you have deleted channels or changed channel positions, be sure to perform Guide Program Number Set (pg. 57) in order to get proper results from ShowView timer recording.

When Receiving A Scrambled Broadcast

SELECT DECODER MODE

Set "AV2 SELECT" to "DECODER" (pg. 39).

1 ACCESS CONFIRMATION SCREEN

Perform steps 1 and 2 of "Storing Channel Manually" on page 52.

2 SELECT POSITION

Press $\Delta \nabla \triangleleft \triangleright$ to select the channel position broadcasting scrambled programmes, then press **OK** twice.

3 CHANGE DECODER SETTING

Press $\triangleright$ until "OFF" (decoder setting) begins blinking, and set it to "ON" by pressing $\Delta \nabla$.

4 RETURN TO CONFIRMATION SCREEN

Press **OK**.

- Repeat steps 3 through 5 as necessary.

5 CLOSE CONFIRMATION SCREEN

Press **MENU**.

Set Stations (A)

Set station names that are registered in your recorder.

Perform steps 1 and 2 of "Storing Channels Manually" on page 52 to access the Confirmation screen before continuing.

SELECT ITEM

Press $\Delta \nabla \triangleleft \triangleright$ until the item you want begins blinking.

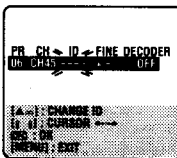
ACCESS MANUAL CHANNEL SET SCREEN

Press **OK** twice.

SELECT NEW STATION

Press $\triangleright$ until the station name (ID) begins blinking, then press $\Delta \nabla$ until the new station's name (ID) you want to store begins blinking.

Registered station names (see pg. 55) appear as you press $\Delta \nabla$.



SWITCH STATIONS

Press **OK**.

- The Confirmation screen appears.
- Repeat steps 1 through 4 as necessary.

CLOSE CONFIRMATION SCREEN

Press **MENU**.

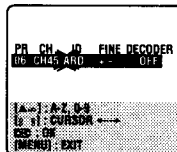
Set Stations (B)

Set station names other than the ones registered in your recorder.

Perform steps 1 and 2 of "Storing Channels Manually" on page 52 to access the Confirmation screen and then perform step 1 and 2 of "Set Stations (A)" on the left before continuing.

SELECT STATION NAME CHARACTER

Press $\triangleright$ until the first letter of the station name begins blinking.



ENTER NEW CHARACTER

Press $\Delta \nabla$ to cycle through the characters (A-Z, 0-9, -, *, +, _ (space)) and stop when the desired character is indicated, then press $\triangleright$ to enter. Enter the remaining characters the same way (maximum of 4). After entering all characters, press **OK**.

- The Confirmation screen appears.
- If you make a mistake, press $\triangleleft$ until the incorrect character begins blinking. Then enter the correct character by pressing $\Delta \nabla$.

CLOSE CONFIRMATION SCREEN

Press **MENU**.

TV Station And ID List

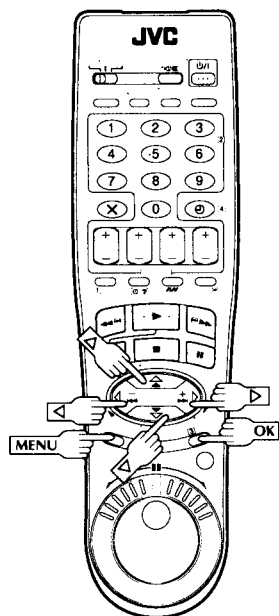
ID*	STATION NAME
1000	TV1000
3SAT	3SAT
ADLT	ADULT
ANT3	ANTENA3
ARD	ARD
ARTE	ARTE
BBC	BBC GROUP
BBC1	BBC1
BBC2	BBC2
BR3	BAYERN3
C+	CANAL PLUS
C1	PORTUGUSES
CAN5	CANALE5
CH4	CHANNEL4
CH5	CHANNEL5
CHILD	CHILD
CINE	CINEMA
CLUB	TELECLUB
CMT	CMT
CNN	CNN
CSUR	ANDALUCIA
DISC	DISCOVERY
DR	DR TV
DRS	DRS
DSF	DSF
ETB1	ETB1
ETB2	ETB2
EURO	EURONEWS
EUSP	EUROSPTS
FEMM	FEMMAN
FILM	FILM
FNET	FILMNET
FR2	France2
FR3	France3
GALA	GALAVISION
HR3	HESSEN3
INFO	INFO-KANAL
ITA1	ITALIA1
ITA7	ITALIA7
ITV	ITV
JSTV	JSTV
KA2	KA2
KAB1	KABEL1
KAN2	KANAL2
LOCA	LOCAL
M6	M6
MBR	MBR
MCM	MCM
MDR	MDR
MOVE	MOVIE
MTV	MTV
MTV3	MTV3
N3	NORD3
N-TV	N-TV
NBC	NBC SUPER
NDR3	NDR3
NED1	NED1
NED2	NED2
NED3	NED3
NEWS	
NICK	NICKELODEON
NRK	NRK
NRK2	NRK2
ODE	ODEON
ORF1	ORF1

ID*	STATION NAME
ORF2	ORF2
ORF3	ORF3
OWL3	OWL3
PREM	PREMIERE
PRO7	PRO7
RAI1	RAI1
RAI2	RAI2
RAI3	RAI3
RETE4	RETE4
21	TELE21
RTBF	RTBF1 or 2
RTL	RTL
RTL2	RTL2
RTL4	RTL4
RTL5	RTL5
RTP	RTP
S4	SCHWEIZ4
SAT1	SAT1
SBS	SBS
SHOW	SHOW
SIC	SOCIEDADE
SKY	SKY CHANNEL
SKYN	SKY NEWS
SPRT	SPORT
SRTL	SUPER RTL
STAR	STAR-TV
SVT1	SVT1
SVT2	SVT2
SW3	SUEDWEST3
TCC	TCC
TELE	TELE
TELS	TELES
TF1	TF1
TM3	TM3
TMC	TELEMONTECARLO
TNT	TNT INT
TRT	TRT INT
TSI	TSI
TSR	TSR
TV1	BRTN TV1
TV2	BRTN TV2
TV3	TV3
TV4	TV4
TV5	TV5
TV6	TV6
TVE1	TVE1
TVE2	TVE2
TVG	TV GALICIA
TVI	TV INDEPENDENT
TVN	TV NORGE
VCR	VIDEO
VERO	VERONICA
VH-1	VH-1
VIVA	VIVA
VIV2	VIVA2
VMTV	VIDEO MUSIC
VOX	VOX
VT4	VT4
VTM	VTM
WDR1	West1
WDR3	West3
YLE1	YLE1
YLE2	YLE2
ZDF	ZDF
ZTV	ZTV

* The "ID" abbreviation is what is shown on-screen in lieu of the station name. The "ID" abbreviation is listed in the Confirmation screen and is displayed on the TV screen when the recorder is tuned to a different station.

Fine-Tuning Channels Already Stored

Perform steps 1 and 2 of "Storing Channels Manually" on page 52 to access the Confirmation screen before continuing.



1 SELECT CHANNEL TO FINE-TUNE

Press $\Delta \nabla \triangleleft \triangleright$ until the channel you want to tune begins blinking.

2 ACCESS MANUAL CHANNEL SET SCREEN

Press **OK** twice. The Manual Channel Set screen appears.

3 PERFORM TUNING

Press $\triangleright$ until "+/-" begins blinking, then press $\Delta \nabla$ until the picture is its clearest. Then press **OK**.

- The Confirmation screen appears.
- Repeat steps 1 through 3 as necessary.

4 CLOSE CONFIRMATION SCREEN

Press **MENU**.

SHOWVIEW Setup

IMPORTANT

Normally, Auto Set Up (pg. 6) or Auto Channel Set (pg. 50) sets the Guide Program Numbers automatically. You need to set the Guide Program Numbers manually only in the following cases.

- When timer-programming with **SHOWVIEW**, the channel position, where the station you wish to record is received on your recorder, is not selected.
- Set the Guide Program Number for that station manually.
- When you add/delete a channel or change channel positions manually after Auto Set Up or Auto Channel Set has taken place.
- Set the Guide Program Numbers for all the receivable stations manually.
- When you wish to timer-record a satellite programme with **SHOWVIEW**.
- Set the Guide Program Numbers for all satellite broadcasts received on your satellite tuner.

Turn on the TV and select the VIDEO channel (or AV mode).

Guide Program Number Set

1 ACCESS MAIN MENU SCREEN

Press **MENU**.

2 ACCESS INITIAL SET SCREEN

Press $\Delta \nabla$ to move the highlight bar (pointer) to "INITIAL SET", then press **OK** or $\triangleright$.

3 ACCESS GUIDE PROG SET SCREEN

Press $\Delta \nabla$ to move the highlight bar (pointer) to "GUIDE PROG SET", then press **OK** or $\triangleright$.

4 ENTER GUIDE PROG NUMBER

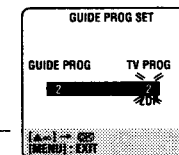
Press $\Delta \nabla$ or **NUMBER** keys to enter the Guide Program number for the desired station as shown in the TV listings. Then press **OK** or $\triangleright$.



(Ex.) When inputting the Guide Program number 2 for ZDF.

5 ENTER RECEIVING CHANNEL POSITION NUMBER

Press $\Delta \nabla$ or **NUMBER** keys to input the number of the recorder's channel position on which the Guide Program number's broadcast is received. Then press **OK** or $\triangleright$.



(Ex.) If ZDF is received on channel position 2.

- If the satellite broadcast is received on your recorder's auxiliary channel "L-2", select "L-2" for the channel position.
- Repeat steps 4 and 5 as necessary.

6 RETURN TO NORMAL SCREEN

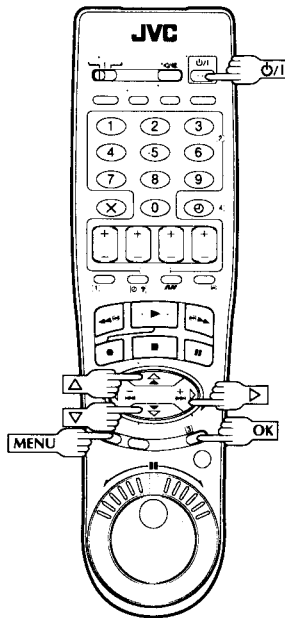
Press **MENU**.

Guide Program Number

"Guide Program (GUIDE PROG) number" refers to the assigned TV station numbers, according to broadcast area, for **SHOWVIEW** timer recording. The Guide Program numbers can be found in most TV listings.

Clock Set

Turn on the TV and select the VIDEO channel (or AV mode).



Just Clock

The Just Clock function provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a PDC signal.
The Just Clock option can be set "ON" or "OFF" at the Clock Set screen (the default setting is "OFF"). Press OK until the Just Clock setting begins blinking, then press Δ / ∇ to change the setting.

IMPORTANT: If you turn off Just Clock, the accuracy of your recorder's built-in clock may be reduced, which could adversely effect timer recording. We recommend you to keep Just Clock on. In cases where the clock setting data from a PDC signal is incorrect, however, you are advised to keep Just Clock set to "OFF".

IMPORTANT

If you performed Auto Set Up (pg. 6) or Auto Channel Set (pg. 50), without ever having set the clock previously, the recorder's built-in clock is also set automatically. Perform the following steps only if —

- Auto Clock Set has not been performed correctly by Auto Set Up or Auto Channel Set.
- or
- the recorder's memory backup has expired.
- or
- you want to change Just Clock setting (pg. "Just Clock" in the left column).

1 TURN THE RECORDER ON

Press P/1.

2 ACCESS MAIN MENU SCREEN

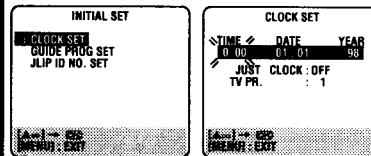
Press MENU.

3 ACCESS INITIAL SET SCREEN

Move the highlight bar (pointer) to "INITIAL SET" by pressing Δ / ∇ , then press OK or $\triangleright$.

4 ACCESS CLOCK SET SCREEN

Move the highlight bar (pointer) to "CLOCK SET" by pressing Δ / ∇ , then press OK or $\triangleright$. The Clock Set screen appears.



5 SET DATE AND TIME

Press Δ / ∇ to set the time, then press OK or $\triangleright$. The "date" display begins blinking. Repeat the same procedure to set the date and year.

- When you set the time, press and hold Δ / ∇ to change the time by 30 minutes.
- When you set the date, press and hold Δ / ∇ to change the date by 15 days.

6 SET JUST CLOCK

The default setting is "OFF". Set as desired by pressing Δ / ∇ , then press OK or $\triangleright$.

- For the Just clock function, pg. "Just Clock" on page 58.
- If you set to "OFF", you can disregard the next step as you won't be able to receive regular clock adjustments.

7 SET CLOCK DATA SOURCE CHANNEL POSITION

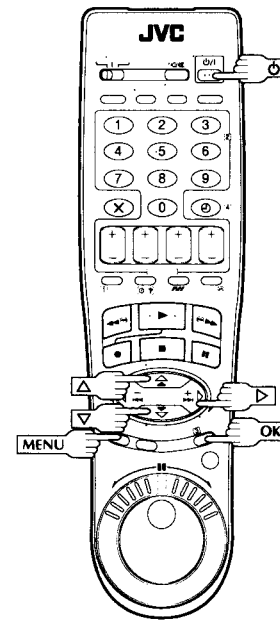
The recorder is preset to receive clock setting and adjustment data from channel position 1. Press Δ / ∇ to set the channel position to the number representing the station transmitting clock setting data, then press OK or $\triangleright$.

8 START CLOCK OPERATION

Press MENU.

NOTES:

- Just Clock (when set to "ON") adjusts the recorder's built-in clock every hour, except for 23:00, 0:00, 1:00 and 2:00.
- Just Clock is not effective when ...
 - the recorder's power is on.
 - the recorder is in the Timer mode.
 - a difference of more than 3 minutes exists between the built-in clock's time and the actual time.
 - the recorder is in the Auto Satellite Prog Rec mode (pg. 32).
 - the recorder is in the Power Save mode (pg. 11).
- If Just Clock is set to "ON", the recorder's clock is automatically adjusted at the start/end of Summer Time.
- Just Clock may not function properly depending on the reception condition.



Before requesting service for a problem, use this chart and see if you can repair the trouble yourself. Small problems are often easily corrected, and this can save you the trouble of sending your video recorder off for repair.

POWER

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. No power is applied to the recorder.	The mains power cord is disconnected.	Connect the mains power cord.
2. The clock is functioning properly, but the recorder cannot be powered.	"⊖" is displayed on the display panel with Auto Timer set to "OFF".	Press the ⊖ button to turn the "⊖" indicator off.
3. The remote control won't function.	- The batteries are discharged. - The VCR/TV/SAT switch is in the wrong position.	Replace the dead batteries with new ones. Set the switch to the position corresponding with the unit you want to operate.

TAPE TRANSPORT

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The tape does not run during recording.	"⏏" is displayed on the display panel.	Press PLAY to turn the "⏏" indicator off.
2. The tape will not rewind or fast-forward.	The tape is already fully rewound or fast-forwarded.	Check the cassette.

PLAYBACK

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The playback picture does not appear while the tape is running.	- If you're using the RF OUT connection the TV receiver's channel selector is not set to the VIDEO channel. ... the recorder's VIDEO channel has not been correctly set. - If you're using the AV or S-VIDEO connection, the TV receiver is not set to the AV mode.	If you are using the RF OUT connection set the TV receiver to the VIDEO channel. (ⓘ pg. 7) ... perform "Video Channel Set". (ⓘ pg. 49) If you are using the AV or S-VIDEO connection, set the TV to its AV mode.
2. Noise appears during visual search.	This is normal during visual search other than TimeScan.	
3. Noise appears during normal playback.	The automatic tracking mode is engaged.	Try manual tracking. (ⓘ pg. 15)
4. The playback picture is blurred or interrupted while TV broadcasts are clear.	The video heads may be dirty.	Consult your JVC dealer.
5. Breaks are noticeable in Hi-Fi soundtrack	Automatic tracking is engaged.	Engage and adjust tracking manually. (ⓘ pg. 15)

RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Recording cannot be started.	There is no cassette loaded, or the cassette loaded has had its Record Safety tab removed.	Insert a cassette, or using adhesive tape, reseal the slot where the tab was removed.
2. TV broadcasts cannot be recorded.	"L-1", "L-2", "F-1" or "S-1" has been selected as the input mode.	Set to the desired channel.
3. Tape-to-tape editing is not possible.	- The source (another video recorder, camcorder) has not been properly connected. - All necessary power switches have not been turned on. - The input mode is not correct.	Confirm that the source is properly connected. Confirm that all units' power switches are turned on. Set the input mode to "L-1", "L-2", "F-1" or "S-1".
4. Camcorder recording is not possible.	- The camcorder has not been properly connected. - The input mode is not correct.	Confirm that the camcorder is properly connected. Set the input mode to "L-1", "L-2", "F-1" or "S-1".

TIMER RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Timer recording won't work.	- The clock and/or the timer have been set incorrectly. - The timer is not engaged.	Re-perform the clock and/or timer settings. Press ⊖ and confirm that "⊖" is displayed on the display panel.
2. Timer programming is not possible.	Timer recording is in progress.	Timer programming can't be performed while a timer recording is in progress. Wait until it finishes.
3. "⊖" and "⏏" on the display panel won't stop blinking.	The timer is engaged but there's no cassette loaded.	Load a cassette with the Record Safety tab intact, or cover the hole using adhesive tape.
4. The cassette is automatically ejected, and "⊖" and "⏏" on the display panel won't stop blinking.	The loaded cassette has had its Record Safety tab removed.	Remove the cassette and cover the hole with adhesive tape, or insert a cassette with the Record Safety tab intact.
5. "⊖" blinks for 10 seconds and the Timer mode is disengaged.	⊖ has been pressed when there are no programs in memory, or the timer record information has been programmed incorrectly.	Check the programmed data and re-program as necessary, then press ⊖ again.
6. The cassette is automatically ejected, the power shuts off and "⊖" and "⏏" won't stop blinking.	The end of the tape was reached during timer recording.	The programme may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire programme.
7. SHOWVIEW does not timer-record properly.	The recorder's channel positions have been set incorrectly.	Refer to "Guide Program Number Set" and re-perform the procedure (ⓘ pg. 57).

OTHER PROBLEMS

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Whistling or howling is heard from the TV during camcorder recording.	- The camcorder's microphone is too close to the TV. - The TV's volume is too high.	Position the camcorder so its microphone is away from the TV. Turn the TV's volume down.
2. When scanning channels, some of them are skipped over.	Those channels have been designated to be skipped.	If you need the skipped channels, restore them (ⓘ pg. 52).
3. The channel cannot be changed.	Recording is in progress.	Press PAUSE to pause the recording, change channels, then press PLAY to resume recording.
4. Channel settings that were made manually seem to have changed or disappeared.	After the manual settings were made, Auto Channel Set was performed.	Perform manual setting again.
5. No channels are stored in the recorder's memory.	The TV aerial cable was not connected to the recorder when Auto Set Up was performed.	Connect the TV aerial cable to the recorder properly and turn off the recorder power once, then turn the recorder power back on again. The recorder will try Auto Set Up again (ⓘ pg. 6).
6. The remote control won't operate the TV or satellite tuner.	The remote control brand setting is incorrect.	Re-set the remote control to the correct brand (ⓘ pg. 34, 35).

PLAYBACK

Q. What happens if the end of the tape is reached during playback or search?

A. The tape is automatically rewound to the beginning.

Q. Can the video recorder indefinitely remain in the still mode?

A. No. It stops automatically after 5 minutes to protect the heads.

Q. When returning from multi-speed search to normal playback, the picture is disturbed. Should I be concerned about this?

A. No, it is normal.

Q. Other than preventing further recording, what effect does removing the Record Safety tab have?

A. It disables marking of index codes.

Q. Sometimes, during Index Search, the video recorder can't find the programme I want to see. Why not?

A. There may be index codes too close together.

RECORDING

Q. When I pause and then resume a recording, the end of the recording before the pause is overlapped by the beginning of the continuation of recording. Why does this happen?

A. This is normal. It reduces distortion at the pause and resume points.

Q. Can the video recorder indefinitely remain in the Record-Pause mode?

A. No. The video recorder goes to its Stop mode automatically after 5 minutes to protect the heads.

Q. What happens if the tape runs out during recording?

A. The video recorder automatically rewinds it to the beginning.

TIMER RECORDING

Q. "○" and "□" remain lit on the display panel. Is there a problem?

A. No. This is a normal condition for a timer recording in progress.

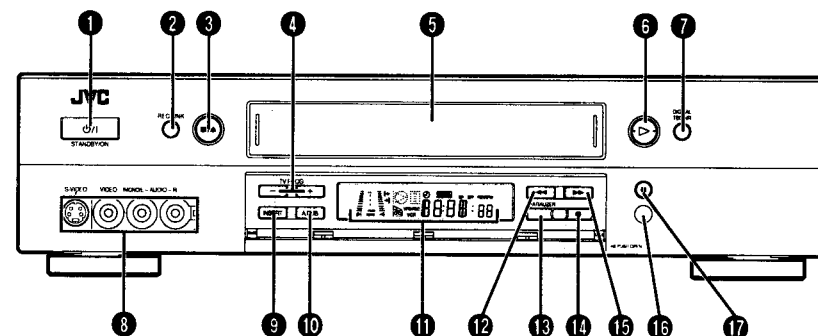
Q. Can I programme the timer while I'm watching a tape or a TV broadcast?

A. You won't see the picture as it is replaced by the on-screen menu, but the audio from the programme or tape you're viewing can be heard.

Q. Is it possible to timer-record a TV programme broadcast in 2000?

A. Yes, it is possible.

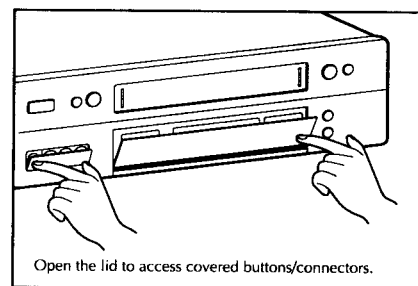
FRONT VIEW



- ① STANDBY/ON ϕ /I Button $\Rightarrow$ pg. 6
- ② REC LINK Button $\Rightarrow$ pg. 32
- ③ STOP/EJECT Button $\Rightarrow$ pg. 13
- ④ TV PROG +/- Buttons $\Rightarrow$ pg. 20
- ⑤ Cassette Loading Slot
- ⑥ PLAY Button $\Rightarrow$ pg. 13
- ⑦ DIGITAL TBC/NR Button $\Rightarrow$ pg. 16
- ⑧ S-VIDEO/VIDEO/AUDIO Input Connectors $\Rightarrow$ pg. 37

- ⑨ INSERT Button $\Rightarrow$ pg. 40
- ⑩ Audio Dubbing [A. DUB] Button $\Rightarrow$ pg. 44
- ⑪ Display Panel $\Rightarrow$ pg. 64
- ⑫ Rewind [REW] Button $\Rightarrow$ pg. 13
- ⑬ SPATIALIZER Button $\Rightarrow$ pg. 17
- ⑭ RECORD Button $\Rightarrow$ pg. 20
- ⑮ Fast-Forward [FF] Button $\Rightarrow$ pg. 13
- ⑯ Infrared Beam Receiving Window
- ⑰ PAUSE Button $\Rightarrow$ pg. 14

Attach the provided connector cover when you do not use the front panel connectors.

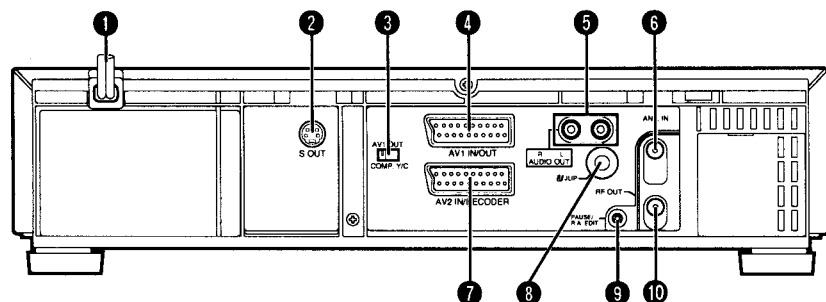


Open the lid to access covered buttons/connectors.

ATTENTION

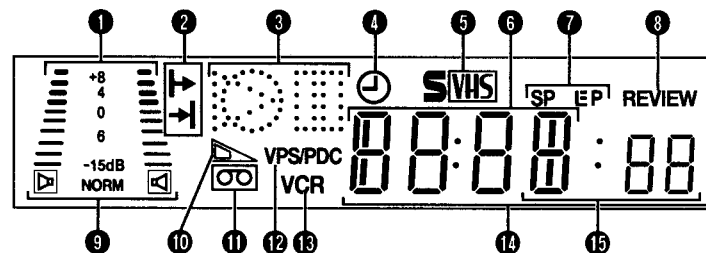
This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the recorder off and unplug the mains power cord. Then plug it in again and turn the recorder on. Take out the cassette. After checking the cassette, operate the unit as usual.

REAR VIEW



- 1 Mains Power Cord ☞ pg. 4
- 2 S-Video OUT Connector ☞ pg. 5
- 3 AV1 OUT Switch ☞ pg. 4
- 4 AV1 IN/OUT Connector ☞ pg. 4, 39
- 5 AUDIO OUT (L/R) Connectors ☞ pg. 48
- 6 ANT. IN Connector ☞ pg. 4
- 7 AV2 IN/DECODER Connector ☞ pg. 39, 46, 47
- 8 J terminal [JLIP (Joint Level Interface Protocol) Connector] ☞ pg. 45
- 9 Remote PAUSE Connector ☞ pg. 37
- 10 RF OUT Connector ☞ pg. 4

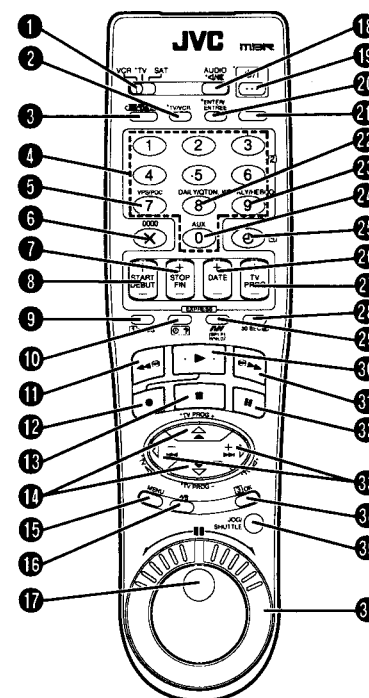
DISPLAY PANEL



- 1 B.E.S.T. Picture System Display ☞ pg. 24
- 2 Audio Level Indicator ☞ pg. 23
- 3 Programme Time Indicators ☞ pg. 28
- 4 Symbolic Mode Indicators
- 5 "Timer" Indicator ☞ pg. 27, 29
- 6 S-VHS Indicator ☞ pg. 22
- 7 Channel/Clock Display ☞ pg. 8
- 8 Tape Speed Indicators ☞ pg. 20
- 9 EP is only for NTSC playback
- 10 Instant REVIEW Indicator ☞ pg. 15
- 11 Audio Mode Indicator ☞ pg. 17
- 12 Tape Remaining Time Indicator ☞ pg. 21
- 13 "Cassette Loaded" Mark
- 14 VPS/PDC Indicator ☞ pg. 27, 29
- 15 VCR Indicator ☞ pg. 21
- 16 Counter/Remain Display
- 17 Mode Display (L-1, L-2, F-1 or S-1)

PLAY: FF/REW VARIABLE SHUTTLE SEARCH:	▶	STILL:	▶
		SLOW:	▶
		RECORD:	○
AUDIO DUBBING:		RECORD PAUSE:	⊞
AUDIO DUBBING PAUSE:			
INSERT:			
INSERT PAUSE:			
AUDIO DUBBING INSERT:			
AUDIO DUBBING INSERT PAUSE:			

REMOTE CONTROL



Buttons with a small dot on the left side of the name can also be used to operate your TV ☞ pg. 34.

- 1 VCR/TV/SAT Switch ☞ pg. 34, 35
- 2 TV/VCR Button ☞ pg. 21, 34
- 3 REVIEW Button ☞ pg. 15
- 4 NUMBER Keys ☞ pg. 20, 26
- 5 VPS/PDC Button ☞ pg. 27, 29
- 6 X Button ☞ pg. 30
- 7 0000 Button ☞ pg. 21
- 8 STOP +/- Button ☞ pg. 28
- 9 START +/- Button ☞ pg. 28
- 10 PROG Button ☞ pg. 26
- 11 ? Button ☞ pg. 30
- 12 Rewind [REW] Button ☞ pg. 13, 14
- 13 Record Button ☞ pg. 20
- 14 Stop Button ☞ pg. 13, 20
- 15 Δ▽ Button ☞ pg. 6
- 16 TV PROG +/- Button ☞ pg. 34
- 17 MENU Button ☞ pg. 9
- 18 A/B Code Button ☞ pg. 33
- 19 JOG Dial ☞ pg. 14
- 20 AUDIO Button ☞ pg. 17
- 21 (TV Muting) Button ☞ pg. 34
- 22 STANDBY/ON ⏻ Button ☞ pg. 6
- 23 ENTER Button ☞ pg. 34
- 24 --- Button ☞ pg. 21
- 25 DAILY Button ☞ pg. 27, 29
- 26 WEEKLY Button ☞ pg. 27, 29
- 27 AUX Button ☞ pg. 37, 38
- 28 DATE +/- Button ☞ pg. 28
- 29 TV PROG +/- Button ☞ pg. 20
- 30 30 SEC Button ☞ pg. 15
- 31 (Auto Tracking) Button ☞ pg. 15
- 32 SP/LP Button ☞ pg. 20
- 33 Play Button ☞ pg. 13
- 34 Fast Forward [FF] Button ☞ pg. 13, 14
- 35 Pause Button ☞ pg. 14
- 36 <▶ Button ☞ pg. 14, 18
- TV ⏻ +/- Button ☞ pg. 34
- OK Button ☞ pg. 7
- JOG/SHUTTLE Button ☞ pg. 14
- SHUTTLE Ring ☞ pg. 14

How To Use

The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets and satellite tuners of JVC and other brands. ☞ pg. 34, 35.

- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

NOTES:

- When inserting the batteries, be sure to insert in the correct directions as indicated under the battery cover.
- If the remote control doesn't work properly, remove its batteries, wait a short time, replace the batteries and then try again.

GENERAL

Power requirement	: AC 220 – 240 V~, 50/60 Hz
Power consumption	
Power on	: 26 W
Power off	: 5.5 W
Power save (HR-S9500E only)	: 3 W
Temperature	
Operating	: 5°C to 40°C
Storage	: -20°C to 60°C
Operating position	: Horizontal only
Dimensions (WxHxD)	: 437 x 109 x 339 mm
Weight	: 5.0 kg
Format	: S-VHS/VHS PAL standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal, 625 lines 50 fields
Recording system	: DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 250 lines (VHS) 400 lines (S-VHS)
Frequency range	: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output	: 21-pin scart connectors : IN/OUT x 1, IN/DECODER x 1 RCA connectors: VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1 S-Video connectors: IN x 1, OUT x 1

TUNER/TIMER

TV channel storage capacity	: 99 positions (+AUX position)
Tuning system	: Frequency synthesized tuner
Channel coverage	: VHF 47 – 89/104 – 300/ 302 – 470MHz UHF 470 – 862MHz
Aerial output	: UHF channels 22 – 69 (Adjustable)
Memory backup time	: Approx. 60 min.

ACCESSORIES

Provided accessories	: RF cable, Infrared remote control unit, "R6" battery x 2, S-Video cable, Connector cover (for front panel connectors)
----------------------	---

Specifications shown are for SP mode unless otherwise specified.
E & O.E. Design and specifications subject to change without notice.

Auto Set Up – referring to the display panel

The Auto Set Up function sets the tuner channels, clock, Guide Program numbers and video channel* automatically.

* Useful for RF connection users.

BEFORE YOU START PLEASE MAKE SURE THAT:

- The TV aerial cable is connected to the ANT.IN jack on the rear panel of the video recorder.
- The video recorder's mains power cord is connected to a mains outlet.
- The video recorder is turned off.
- Load batteries into the remote control.

1 Press $\odot$ /I (recorder/remote).

SET - -

2 Press Δ / ∇ (remote) to select the international telephone country code.

(Ex.) DEUTSCHLAND is selected.

SET 49

- If you have selected a country code other than 32 (BELGIUM) or 41 (SUISSE), go to step 3.

International Telephone Country Code

SUISSE	: 41	SUOMI	: 358
ITALIA	: 39	PORTUGAL	: 351
ESPAÑA	: 34	DEUTSCHLAND	: 49
BELGIUM	: 32	NORGE	: 47
NEDERLAND	: 31	SVERIGE	: 46
GREECE	: 30	DANMARK	: 45
OTHERS	: - -	ÖSTERREICH	: 43

- If you have selected 32 (BELGIUM) or 41 (SUISSE), press **OK** (remote) and select the language code by pressing Δ / ∇ (remote), then go to step 3.

(Ex.) FRANCAIS is selected for BELGIUM

32-03

International Telephone
Country Code

Language Code

Language Code

ENGLISH	: 01	NEDERLANDS	: 06
DEUTSCH	: 02	SVENSKA	: 07
FRANCAIS	: 03	NORSK	: 08
ITALIANO	: 04	SUOMI	: 09
CASTELLANO	: 05	DANSK	: 10

3 Press **OK** (remote). Do NOT press any button on the video recorder or remote control until the display panel shows as follows.

Auto → OUT 36

Video Channel

- If "- -" appears on the display panel, see page 6 of the instructions.

- If you have connected the video recorder to your TV via RF connection, press **OK** to finish the Auto Set Up. To view picture signals from the video recorder, set your TV to the Video Channel.
- If you have connected the video recorder to your TV via AV connection, press **TV PROG** – until the display panel shows "OUT- -" to set the Video Channel to off, then press **OK** to finish the Auto Set Up. To view picture signals from the video recorder, set your TV to its AV mode.

* Once you have performed Auto Set Up, even if the recorder's memory backup has expired, the recorder will not perform Auto Set Up again. Perform tuner setting (pg. 50), clock setting (pg. 58) and/or Video Channel setting (pg. 49) as required.

FOR MORE INFORMATION SEE INSTRUCTIONS/P6

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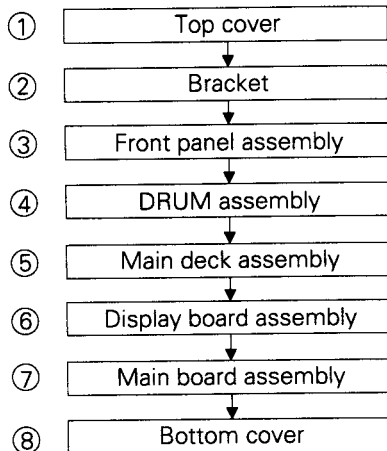
COPYRIGHT © 1998 VICTOR COMPANY OF JAPAN, LTD.

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SECTION 1 DISASSEMBLY

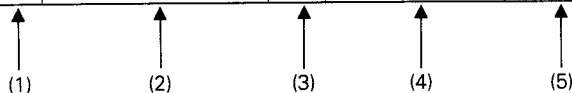
1.1 DISASSEMBLY FLOW CHART

This flowchart lists the disassembling steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally laid.



1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	3(S1)	<NOTE 1>
②	BRACKET	D2	2(S2)	
③	FRONT PANEL ASSEMBLY	D3	7(L1)	<NOTE 2> <NOTE 3>



- (1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.
- (2) Part name to be removed or installed.
- (3) Fig.No. showing procedure or part location
- (4) Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, * = Unhook, unlock, release, unplug or unsolder.
- (5) Adjustment information for installation

1.3 DISASSEMBLY/ASSEMBLY METHOD

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1), (S2)	
②	BRACKET	D2	2(S3)	
③	FRONT PANEL ASSEMBLY	D3	2(S4), 9(L1), WR2, 2(L2), WR1, *CN7191, *CN7192, JACK BOARD	<NOTE 1> <NOTE 2>
④	DRUM ASSEMBLY	D4	3(S5), CN1, CN3301, WR3, WR4, 4(L3), (L4), (P1) INERTIA PLATE ROLLER ARM ASSY	<NOTE 2>
⑤	MAIN DECK ASSEMBLY	D5	2(S6), 2(S7), WR5 2(L5), *CN4001	<NOTE 3>
⑥	DISPLAY BOARD ASSEMBLY	D6	8(L6), *CN7001, REC SAFETY BOARD (L7)	<NOTE 4>
⑦	MAIN BOARD ASSEMBLY	D7	(S8), 2(S9)	
⑧	BOTTOM COVER	D8	2(S10), 4(L8), 7(L9), 4(L10)	

<NOTE1>

- Before attaching the Front panel assembly, ensure that the door opener Ⓐ is in the lowered position.

<NOTE2>

- When inserting the flat wire into the connector, be careful not to mistake the positioning of its electrodes.

<NOTE3>

- When it is required to remove the screws (S6) retaining the Main deck assembly, please refer to the "Procedures for Lowering the Cassette holder assembly" (See on pages 1-3).
- The Main deck assembly is also retained by two spacers on the Main board. Therefore, to remove the Main deck assembly, insert radio pliers or a similar tool from the main deck side and pinch the two hooks of the spacers while removing.
- When attaching the Main deck assembly, be careful not to damage the sensors and switches on the Main board (D3001: LED, Q3001: Start sensor, Q3002: End sensor S3003 : S cassette switch).

<NOTE4>

- The REC safety board assembly is attached to the Display board assembly. It is therefore necessary to remove the REC safety board assembly before removing the Display board assembly.
- When inserting the flat wire into the connector, be careful not to mistake the positioning of its electrodes.

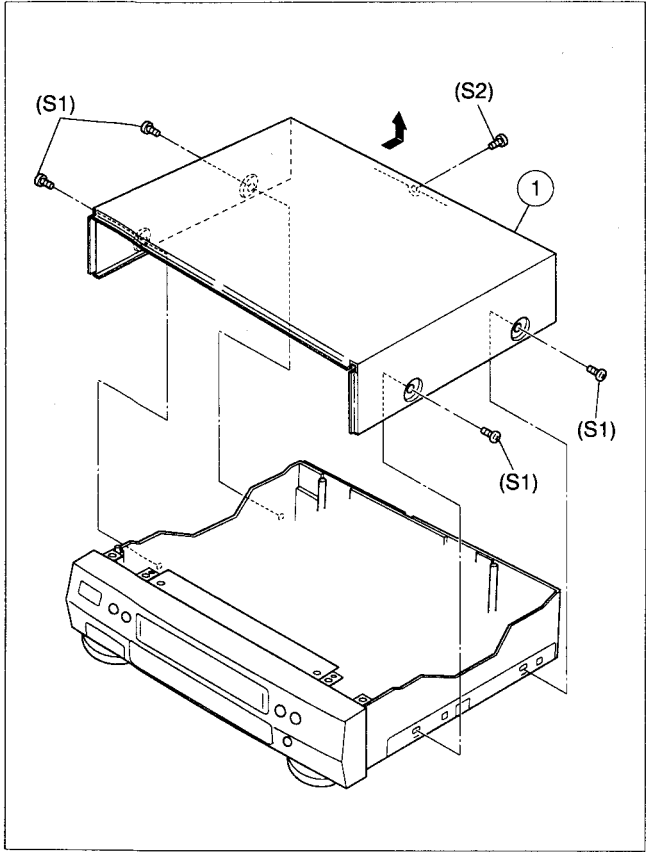


Fig. D1

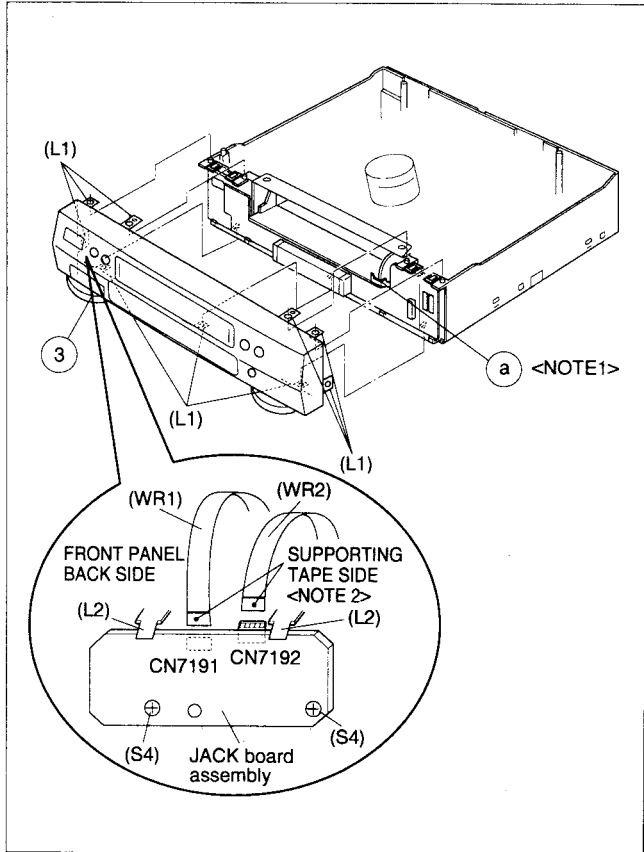


Fig. D3

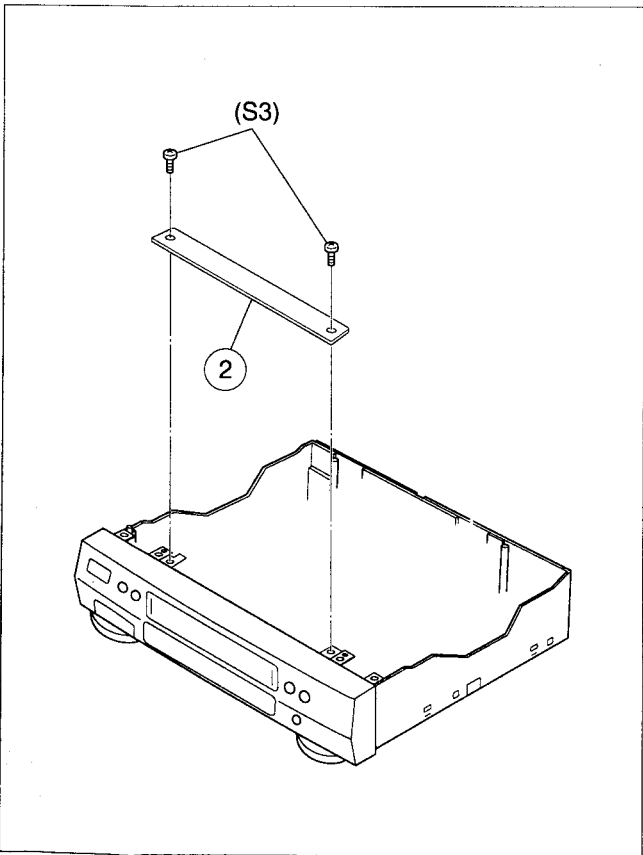


Fig. D2

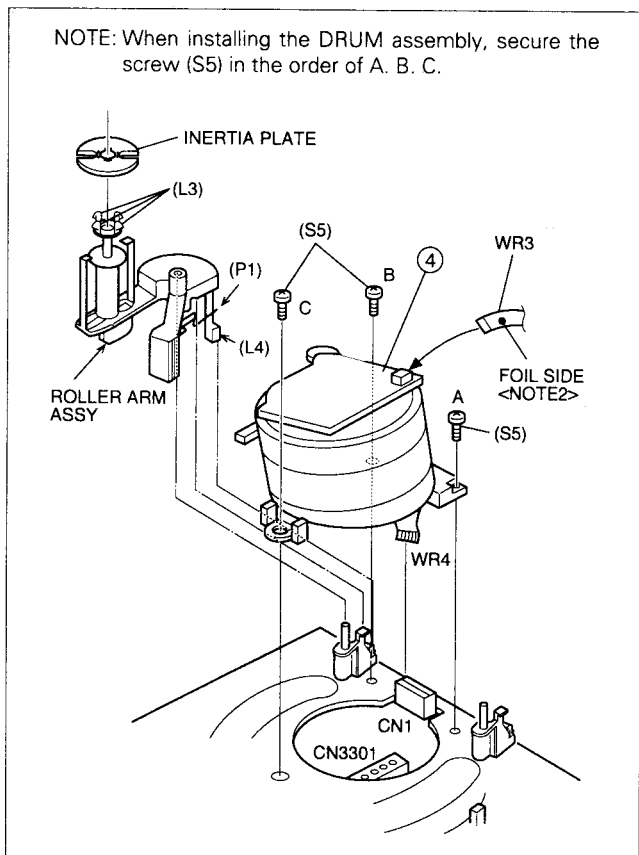


Fig. D4

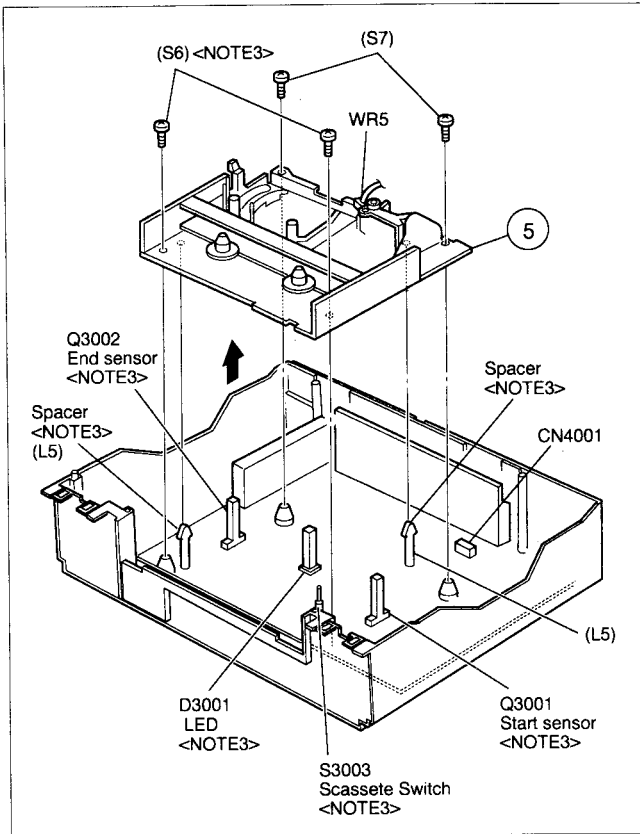


Fig. D5

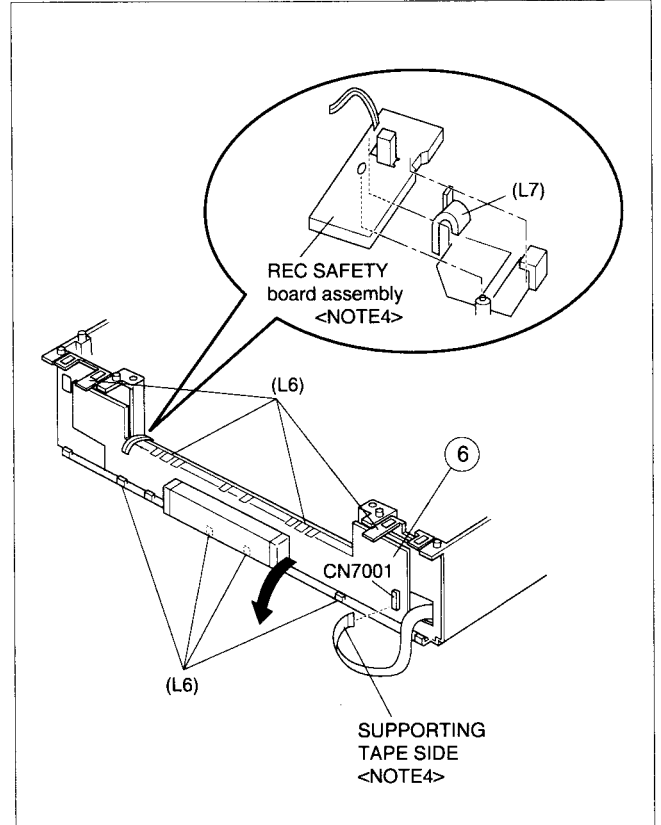


Fig. D6

Procedures for Lowering the Cassette holder assembly

As the mechanism of this unit is integrated with the Housing assembly, the holder must be lowered and the two bolts unscrewed when removing the Main deck assembly.

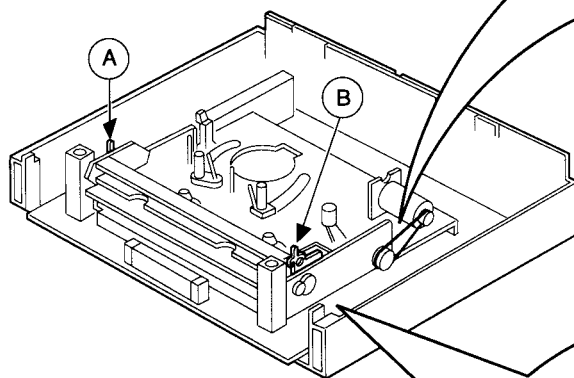


Fig. 1

Turn the loading motor pulley in the direction as indicated by Fig.2. As both (A) and (B) levers are lodged twice, push the levers in the direction as indicated by Fig.3 to release them. When pushing the levers, do it in the order of (A), (B), (B), (A). When the holder has been lowered, turn the pulley until the cassette holder is securely in place without allowing any up/down movement.

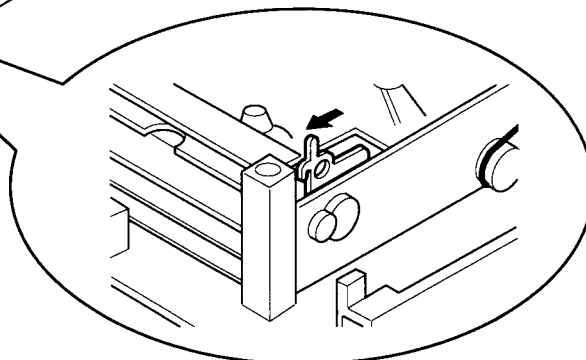


Fig. 3

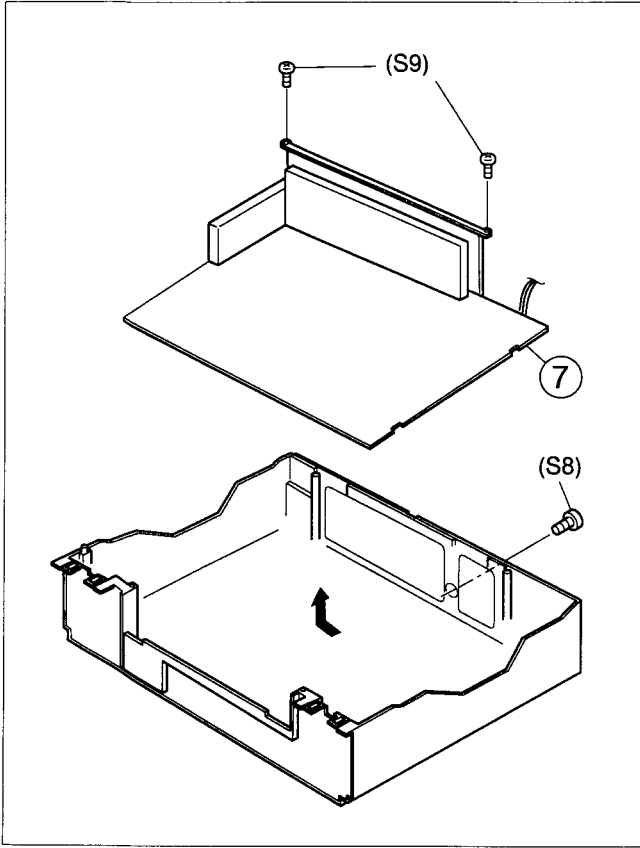


Fig. D7

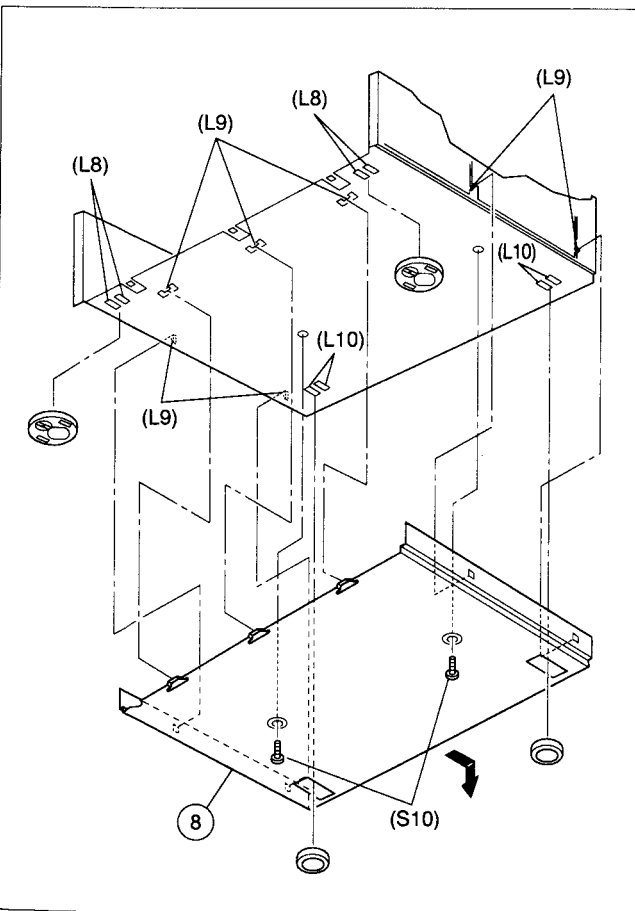


Fig. D8

1.4 SERVICE POSITION

In order to facilitate diagnosis and the repair of the Main deck assembly, this unit is constructed so as to allow the Main deck and the Main board assemblies to be removed together from the Chassis assembly.

1.4.1 How to take out the Mechanism and Main board assemblies

- (1) Remove the Top cover, Bracket, Front panel assembly and JACK board assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD. Take care not to pull the drum wire (Fig.D4) from CN1).
- (2) Lower the cassette holder, and make the preparations required in order to remove the screws from the Main deck assembly (Refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD).
- (3) Take out 2 screws (A) and 2 screws (B) as shown in Fig. 1-4-1.
- (4) Take out 2 screws (C) and take out 1 screw (D) to install the Bottom cover (See Fig. 1-4-1).

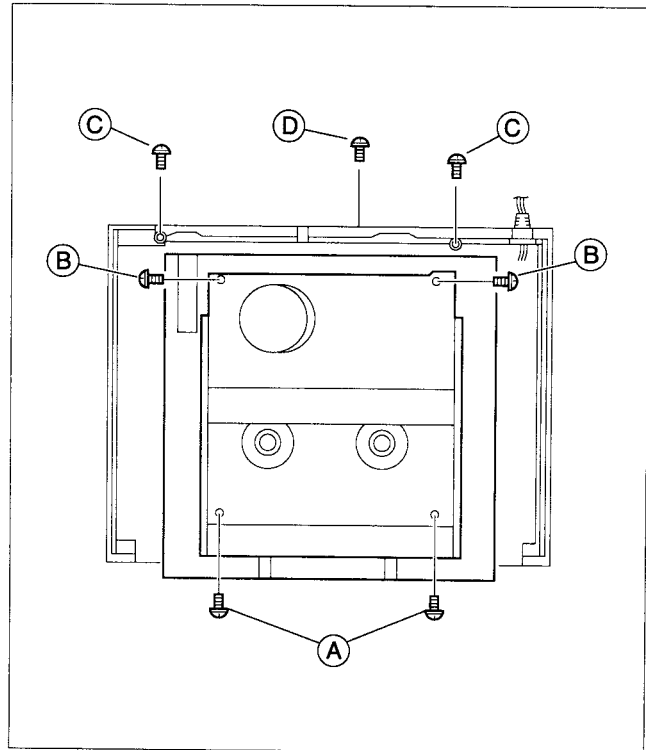


Fig. 1-4-1

- (5) While holding the edge of the Main board, and remove the Main board and Main deck assemblies together. At this stage be careful of the power cord and prongs of the jacks on the back side (See Fig. 1-4-2).
- (6) Remove the Display board assembly and REC safety board (See 1.3 DISASSEMBLY/ASSEMBLY METHOD), then place them on the front side of the Main deck assembly and Main board assembly which have been deassembled at the procedure (6) and place the Jack board on the left side of the Main deck assembly and Main board assembly. Then connect the flat wires into CN7001 of the Display board assembly, CN7191 and CN7192 of the JACK board assembly (See Fig. 1-4-3).

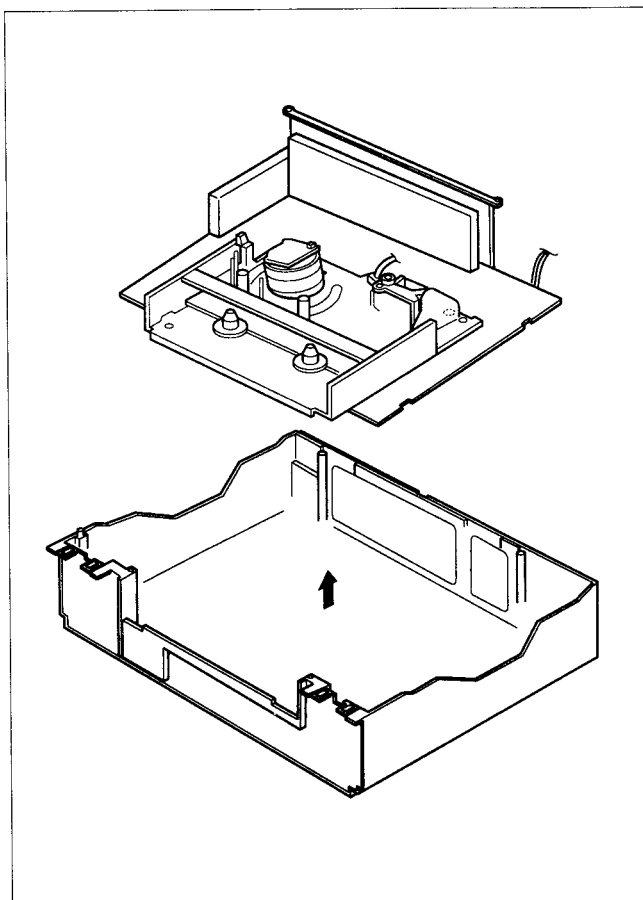


Fig. 1-4-2

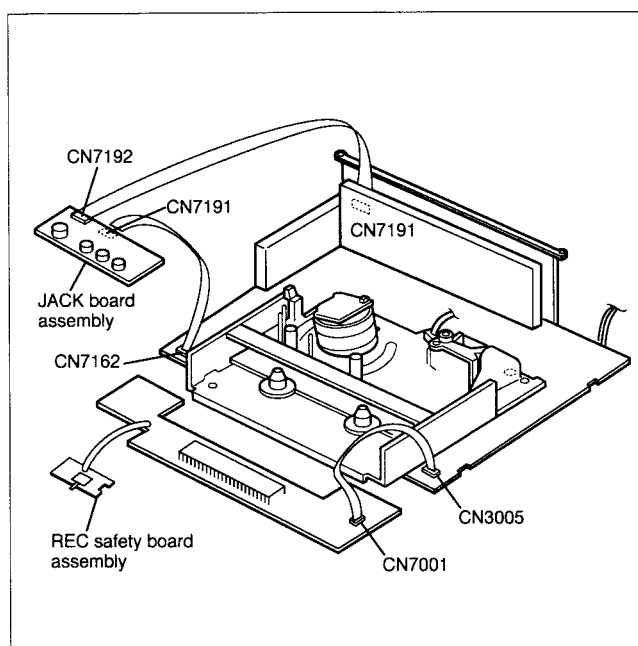


Fig. 1-4-3

Note: When carrying out diagnosis and repair of the Main board assembly in the service position, be sure to ground both the Main board and the Main deck assemblies.

If they are improperly grounded, there may be noise on the playback picture or the FDP counter display may move even when the mechanism is kept in an inoperative status.

1.4.2 Precautions for cassette loading in the "SERVICE POSITION"

The REC safety board assembly detects cassette loading as well as cassette tabs. Therefore, after the assembly has been removed in the "SERVICE POSITION", it is required to set the switch manually on the REC safety board assembly when a cassette is loaded.

1.4.3 Cassette loading and ejection methods in the "SERVICE POSITION" (See Fig. 1-4-3).

- (1) Insert a cassette halfway in the Cassette holder assembly.
- (2) Set the switch on the REC safety board assembly to ON (by pressing the switch).
- (3) As soon as the cassette starts to be loaded, set the switch on the REC safety assembly to OFF (by releasing the switch).
- (4) Now the desired operation (recording, playback, fast forward, rewind, etc.) is possible in this status (the status shown in Fig. 1-4-3).

NOTES:

- When performing diagnostics of the tape playback or recording condition in the "SERVICE POSITION", enter the desired mode before turning the set upside down, and do not change the mode during diagnostics while the set is placed upside down. If you want to switch the mode, turn the set to the normal position (the status shown in Fig. 1-4-3).

- In the "SERVICE POSITION", the cassette tabs cannot be detected and recording becomes possible even with a cassette with broken tabs such as the alignment tape. Be very careful not to erase important tapes.

- (5) The switch on the REC safety board assembly does not have to be operated when ejecting a tape. But be sure to turn the set to the normal position before ejecting the tape.

- (7) Connect the power cord to the wall socket, and lift the cassette holder.
(Before turning on the power make sure that there is nothing which may produce a short circuit, such as faulty soldering.)

1.5 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.5.1 How to set the "MECHANISM SERVICE MODE"

- (1) Disconnect VCR from AC.
- (2) Connect TPGND and TP7001(TEST) on the Display board assembly with a jump wire.
- (3) Connect VCR to AC.
- (4) Set the power switch to ON.
- (5) With lock levers ⒶⒷ on the left and right of the Cassette holder assembly pulled toward the front, slide the holder in the same direction as the cassette insertion direction. (For the positions of lock levers ⒶⒷ, refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
- (6) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.

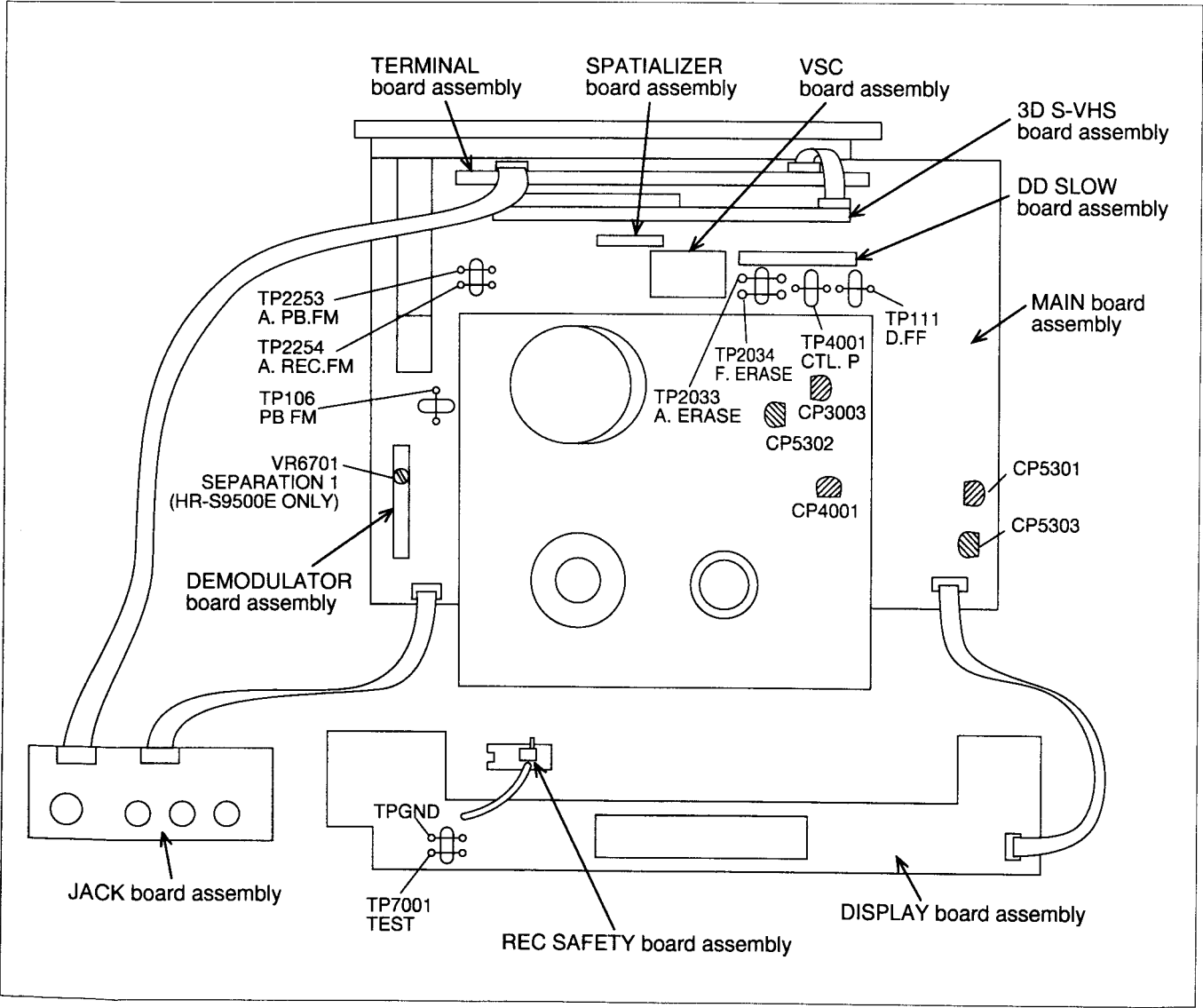


Fig. 1-5-1

1.6 EMERGENCY DISPLAY FUNCTION

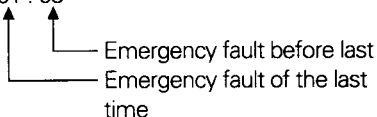
This product has the function to store the last two previous emergency faults which can be displayed in the FDP when servicing.

1.6.1 How to display record of an emergency faults

Note: Put the unit into A mode by using the VCR remote control. (When it is in B mode, the preset remote control codes are not accepted.)

- (1) Press "N" button of the presetting unit more than 2 seconds and the two previous emergency faults are shown in the LED or FDP.
- (2) Press "N" button of the presetting unit again to return to the normal mode.

[Example] E : 01 : 03



[Example] E : — : — ← No record of emergency

1.6.3 How to clear emergency record

Press the COUNTER RESET button on the remote controller in the emergency record display mode, and the record of the emergency fault(s) is cleared.

1.6.2 Detail of emergency faults

EMG DATA	Symptom	Detect mode	Resulting mode
E : 01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E : 02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E : 03	TU REEL FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 04	DRUM FF input is absent. (for more than 3 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 06	CAPSTAN FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 07	No SWD5V/12V	POWER ON	POWER OFF
E : 08	Initialized action of DD (Dynamic Drum) is not complete for less than 4 seconds.	Connect VCR to AC	STOP
E : 09	DD drive motor is not rotate for more than 2.5 seconds.	on TIME SCAN	STOP

Table 1-6-1 EMERGENCY FAULTS

1.7 SYSCON CIRCUIT

1.7.1 Syscon CPU pin function (IC3001) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	IND(L)	IN	AUDIO INPUT(LCH) FOR THE FDP AUDIO INDICATOR
2	IND(R)	IN	AUDIO INPUT(RCH) FOR THE FDP AUDIO INDICATOR
3	PERI 1S	IN	INPUT FOR THE TERMINAL SLID SW POSI IN THE SAT MODE
4	INDEX	IN/OUT	DETECTION SIGNAL FOR SERVO INDEX
5	AVSS	-	GND FOR ANALOG CIRCUIT
6	TEST	-	GND
7	X2	-	TIMER CLOCK (32.768 KHz)
8	X1	-	TIMER CLOCK (32.768 KHz)
9	VSS	-	GND
10	OSC1	-	MAIN SYSTEM CLOCK (10 MHz)
11	OSC2	-	MAIN SYSTEM CLOCK (10 MHz)
12	RESET	-	RESET TERMINAL (RESET ON:L)
13	(NMI)	-	NC
14	PS SECAM(H)	-	NC
15	LOCK(L)	IN	(TUNING PLL LOCK DETECT:L)
16	SYNC DET	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)
17	PWER DOWN	IN	DETECTION SIGNAL FOR POWER DOWN
18	SQ REC(L)	OUT	S-VHS ET REC MODE CONTROL (REC:L)
19	P.MUTE(L)	OUT	PICTURE MUTE CONTROL (MUTE:L)
20	R.PAUSE	IN	REMOTE PAUSE CONTROL
21	SECAM DET	-	NC
22	NC	-	NC
23	A.WIDE	OUT	SPATIALIZER CTL
24	A.EFFECT	OUT	SPATIALIZER CTL
25	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE ON:H)
26	TS BUSY	IN	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO SUB
27	TS CS	OUT	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO SUB
28	TM CLOCK	OUT	CLOCK SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
29	TM CS	OUT	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
30	TM BUSY	IN	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
31	TM DATA0	IN/OUT	DATA ON THE BUS LINE
32	TM DATA1	IN/OUT	DATA ON THE BUS LINE
33	TM DATA2	IN/OUT	DATA ON THE BUS LINE
34	TM DATA3	IN/OUT	DATA ON THE BUS LINE
35	TM DATA4	IN/OUT	DATA ON THE BUS LINE
36	TM DATA5	IN/OUT	DATA ON THE BUS LINE
37	TM DATA6	IN/OUT	DATA ON THE BUS LINE
38	TM DATA7	IN/OUT	DATA ON THE BUS LINE
39	H.REC(H)	OUT	HIFI AUDIO REC MODE CONTROL SIGNAL (REC:H)
40	N.REC(H)	OUT	NORMAL AUDIO REC MODE CONTROL SIGNAL(REC:H)

Table 1-7-1 SYSCON CPU pin function(1/2)

1.7.2 Syscon CPU pin function (IC3001) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	MS_RESET	OUT	RESET SIGNAL FOR THE MECHANISM CONTROL IC(IC3301)
42	CNR_ON(H)	OUT	CNR ON SIGNAL(ON:H)
43	TU DATA	OUT	TUNING DATA
44	D_MUTE(H)	OUT	TUNER MUTE SIGNAL (MUTE:H)
45	SECAM TU ON(L)	OUT	TUNER "L" SYSTEM MODE:H
46	TU CE	OUT	CHIP ENABLE OF THE TUNER UNIT
47	TU CLOCK	OUT	CLOCK FOR DATA TRANSFER TO THE TUNER UNIT
48	DK(H)/FORCE(L)	OUT	TUNER SYSTEM "DK" MODE : H
49	SECAM VL(H)	OUT	TUNER SYSTEM "L" MODE : L
50	RCIN	IN	DATA INPUT OF THE REMOTE CONTROL UNIT
51	NTSC(H)	OUT	TUNER SYSTEM "NTSC" MODE:H
52	FULL_E_ON(H)	OUT	REC MODE:H
53	V.SYNC	IN	INPUT FOR THE VIDEO SYNC
54	P.SAVE(L)	OUT	POWER SAVE:L
55	CCIR(L)	OUT	EXCEPT FOR NTSC:L
56	OSD CS	OUT	CHIP SELECT FOR THE ON-SCREEN IC
57	S2-OUT	OUT	SERIAL DATA TRANSFER OUTPUT FROM THE FDP DRIVER TO THE ON-SCREEN IC
58	S2-IN	IN	SERIAL DATA TRANSFER OUTPUT FROM THE ON-SCREEN IC TO FDP DRIVER
59	S2-CLK	OUT	SERIAL DATA TRANSMISSION CLOCK FROM THE FDP DRIVER TO THE ON-SCREEN IC
60	INSERT(L)	OUT	SIMPLE INSERT MODE:L
61	STB	OUT	PERMISSION SIGNAL FOR CLOCK OUTPUT (STROBE SIGNAL)
62	SPH/PSL	OUT	SECAM → PAL CONVERT:H
63	VCC	-	SYSTEM POWER
64	SEC TR(H)	OUT	SECAM SPECIAL PLAYBACK:H
65	TITLE REC	-	NC
66	NC	-	NC
67	CTL_CLOCK	IN	LINEAR TIME COUNTER INPUT
68	SECAM(H)	OUT	COLOR SYSTEM SECAM:H
69	I2C DATA	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR EE PROM
70	I2C CLOCK	IN/OUT	SERIAL DATA TRANSMISSION CLOCK FOR EE PROM
71	D.FF	IN	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
72	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
73	SHTLB	IN	INPUT FOR THE JOG SHUTTLE
74	SHTL(L)/SHTLA	IN	INPUT FOR THE JOG SHUTTLE
75	JSA	IN	INPUT FOR THE JOG SHUTTLE
76	JSB	IN	INPUT FOR THE JOG SHUTTLE
77	RF AGC	-	NC
78	REC LEVEL V	OUT	OUTPUT FOR REC LEVEL CTL
79	AFT/S.CURVE	IN	TUNING CHECK
80	SCRAMBLE(H)	IN	INPUT FOR 8-PIN OF AV2

Table 1-7-2 SYSCON CPU pin function(2/2)

1.7.3 Syscon CPU pin function (IC3301) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	A.ENV/ND(L)	IN	INPUT THE AVERAGE OF FMA PLAYBACK SIGNAL-A (AUTO TRACKING AND FMA NON-RECORD DETECTION)
2	VIDEO ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
3	6.5H DET	IN	6.5H DETECTION SIGNAL FOR SERVO CIRCUIT
4	RECSF	IN	DETECTION SIGNAL FOR REC SAFETY/CASSETTE INSERT SWITCH
5	AVSS	-	GND FOR ANALOG CIRCUIT
6	TEST	-	GND
7	X2	-	TIMER CLOCK (32.768 KHz)
8	X1	-	TIMER CLOCK (32.768 KHz)
9	VSS	-	GND
10	OSC1	-	MAIN SYSTEM CLOCK (10 MHz)
11	OSC2	-	MAIN SYSTEM CLOCK (10 MHz)
12	MS_RESET	-	RESET TERMINAL (RESET ON:L)
13	(NMI)	-	NC
14	LSC	IN	MECHANISM MODE DETECT SWITCH (C)
15	LSB	IN	MECHANISM MODE DETECT SWITCH (B)
16	LSA	IN	MECHANISM MODE DETECT SWITCH (A)
17	RAE OUT	OUT	RAE TERMINAL FOR PAUSE OUT
18	C/M E06	OUT	SPEED CONTROL FOR CAP MOTOR
19	S.SENS	IN	START SENSOR
20	E.SENS	IN	END SENSOR
21	I2C CLOCK	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
22	TU FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
23	SP FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
24	CTL CLOCK	IN	CONTROL PULSE INPUT
25	I2C DATA	IN/OUT	I/O DATA FOR MEMORY IC
26	LCM1	OUT	MODE MOTOR DRIVE CONTROL
27	LCM2	OUT	MODE MOTOR DRIVE CONTROL
28	LCM3	OUT	MODE MOTOR DRIVE CONTROL
29	TM CS	IN	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
30	TM CLOCK	IN	CLOCK SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
31	SLOW P	OUT	MEMORY TIMING CONTROL IN THE SLOW MODE
32	LP SHORT(H)	-	NC
33	SP SHORT(H)	-	NC
34	TM DATA7	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
35	TM DATA6	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
36	TM DATA5	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
37	TM DATA4	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
38	TM DATA3	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
39	TM DATA2	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
40	TM DATA1	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL

Table 1-7-3 SYSCON CPU pin function(1/2)

1.7.4 Syscon CPU pin function (IC3301) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	TM DATA0	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
42	TM BUSY	OUT	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
43	N REC START(H)	OUT	NORMAL AUDIO SOUND RECORDING START
44	H REC START(L)	OUT	HIFI AUDIO SOUND RECORDING START
45	VPCTL	OUT	"V.PULSE CONTROL, V COMPENSATION DURING SPECIAL PLAYBACK"
46	P.CTL(H)	OUT	CONTROL SIGNAL FOR SW POWER SUPPLY
47	EE(L)	OUT	EE/PB CONTROL (EE MODE:L)
48	FLY E ON(H)	OUT	FLYING ERASE CONTROL
49	VSC CLOCK	OUT	SERIAL DATA TRANSFER CLOCK OUTPUT FOR VSC IC
50	VSC DATA	OUT	SERIAL DATA OUTPUT FOR VSC IC
51	R-Y REV	OUT	D.FF TIMING CONTROL SIGNAL FOR SPECIAL PLAYBACK
52	CTL C/D	IN	DETECTION SIGNAL FOR CONTROL PULSE MODE/TAPE RUNNING/BLANK
53	DDFG	IN	DYNAMIC DRUM FG INPUT
54	DDSPDCTL	OUT	DYNAMIC DRUM SPEED CONTROL
55	DDCREV	OUT	DYNAMIC DRUM CONTROL(REVERS)
56	DDCFWD	OUT	DYNAMIC DRUM CONTROL(FORWARD)
57	VIDEO DATA	OUT	TRI-R DATA
58	SP(L)	OUT	SP MODE:L
59	VIDEO CLK	OUT	TRI-R CLK
60	E.P.CTL/IP ON(H)	OUT	VIDEO SYSTEM CTL IN THE BEST MODE/IP CTL
61	V.UP(H)	OUT	HIGH SPEED FF/REW TURBO SEARCH:H
62	TRICK	OUT	SPECIAL PLAYBACK:H
63	VCC	-	SYSTEM POWER
64	SLOW_REV	OUT	PRO SLOW REV(H)
65	1/2_EP/3.58NTSC	OUT	PRO SLOW CTL
66	S_DATA	OUT	SERVO SERIAL DATA OUTPUT
67	CAP REV(L)	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:H/REV:L)
68	DUTY I/O	IN/OUT	DETECTION SIGNAL FOR INDEX DATA
69	CAP FG	IN	DETECTION SIGNAL FOR MODE/TAPE RUNNING/BLANK
70	PAUSE(L)	OUT	STOP CONTROL SIGNAL FOR CAPSTAN MOTOR
71	D.FF	IN	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
72	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
73	SCASS	IN	DETECTION SIGNAL FOR S-VHS CASSETTE
74	SB-G	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
75	DRUM V	OUT	VOLTAGE CONTROL SIGNAL FOR DRUM MOTOR DRIVE
76	CAP V	OUT	VOLTAGE CONTROL SIGNAL FOR CAPSTAN MOTOR SPEED
77	DD ABS	IN	DYNAMIC DRUM POSITION DETECT
78	S(H)	OUT	S-VHS MODE:H
79	HEAD.SEL	OUT	HEAD SELECT (EP HEAD:H/SP HEAD:L)
80	PROTECT	IN	DETECTION SIGNAL FOR SW POWER SUPPLY

Table 1-7-4 SYSCON CPU pin function(2/2)

SECTION 2 MECHANISM ADJUSTMENT

2.1 BEFORE STARTING REPAIR AND ADJUSTMENT

2.1.1 Precautions

- (1) Unplug the power cable of the main unit before using your soldering iron.
- (2) Take care not to cause any damage to the conductor wires when plugging and unplugging the connectors.
- (3) Do not randomly handle the parts without identifying where the trouble is.
- (4) Exercise enough care not to hurt yourself, especially your finger nails, during the repair work.
- (5) When installing the front panel assembly, be sure to hook the lug on the back side of cassette door to the door opener of the cassette holder. If this operation is neglected it will not be possible to remove the cassette when ejecting because the housing door cannot be opened.

2.1.2 Checking for Proper Mechanical Operations

Enter the mechanism service mode when you want to operate the mechanism when no cassette is loaded. (See 1.5 MECHANISM SERVICE MODE)

2.1.3 Manually Removing the Cassette Tape

1. In case of electrical failures

If you cannot remove the cassette tape which is loaded because of any electrical failure, manually remove it by taking the following steps.

- (1) Unplug the power cable and remove the top cover, bracket and front panel assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD)
- (2) Unload the cassette by manually turning the unloading motor of the main deck assembly toward the front. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig.2-1-1)
- (3) Bring the pole base assembly (on the supply or take-up side) to a pause when it reaches the position where it is hidden behind the cassette tape.
- (4) Move the top plate toward the drum while holding down the lug **(A)** of the bracket retaining the top plate. Likewise hold part **(B)** down and remove the top plate. The spring plate **(C)** is then brought under the cassette lid. Then remove the top plate by pressing the whole cassette tape down. (Note 1) (See Fig.2-1-2).
- (5) Remove the cassette tape by holding both the slackened tape and the cassette lid.
- (6) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

Note: The spring plate of the top plate is sharp-edged. Take care not to hurt yourself.

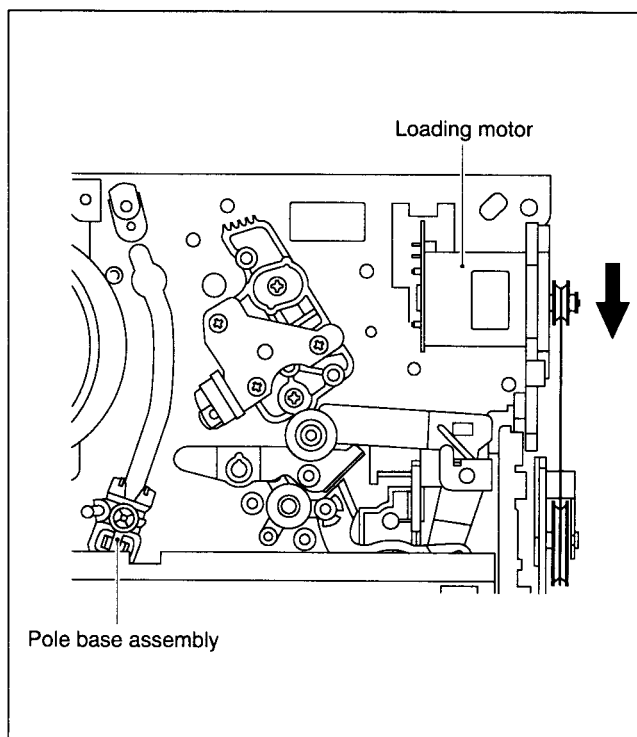


Fig. 2-1-1

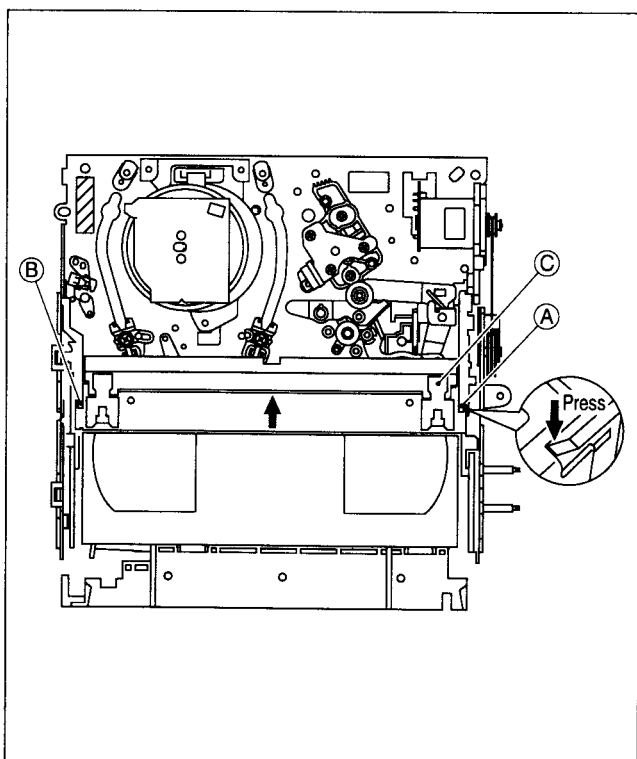


Fig. 2-1-2

2. In case of mechanical failure

If you cannot remove the cassette tape which is loaded because of any mechanical failure, manually remove it by taking the following steps.

- (1) Unplug the power cable and remove the top cover, bracket and front panel assembly (See 1.3 DISASSEMBLY/ASSEMBLY METHOD).
- (2) While keeping the tension arm of the main deck assembly free from tension, pull the tape on the pole base assembly out of the guide roller (on the supply or take-up side) (See Fig.2-1-3).
- (3) Remove the top plate as done in Step (4) of "1 In case of electrical failures" and remove the guide pole cap at the same time. (See Fig.2-1-4).
- (4) While lifting the cassette tape lid, hold the cassette tape case and pinch roller by the fingers and move them toward the loading motor to relieve pressure on the tape. Then remove the tape while taking the cassette case out of the cassette holder. (See Fig.2-1-4).
- (5) Re-place the guide pole cap and take up the slack of the tape into the cassette.

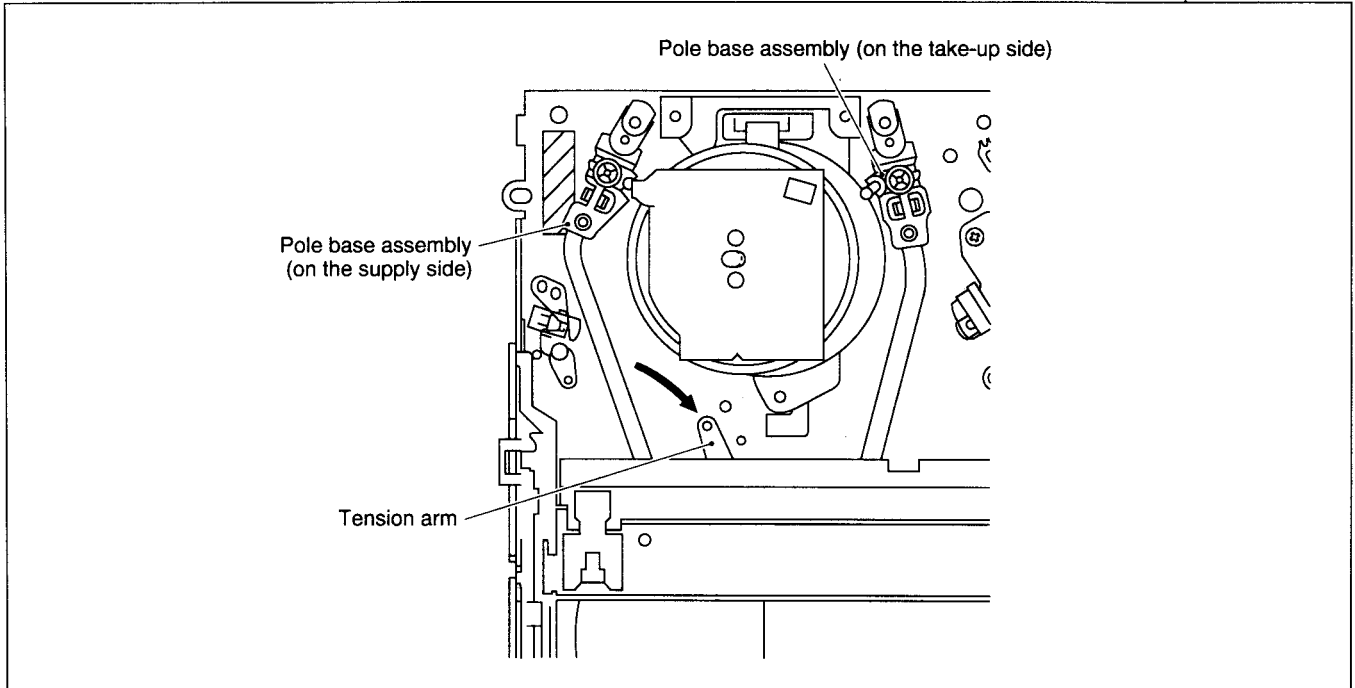


Fig. 2-1-3

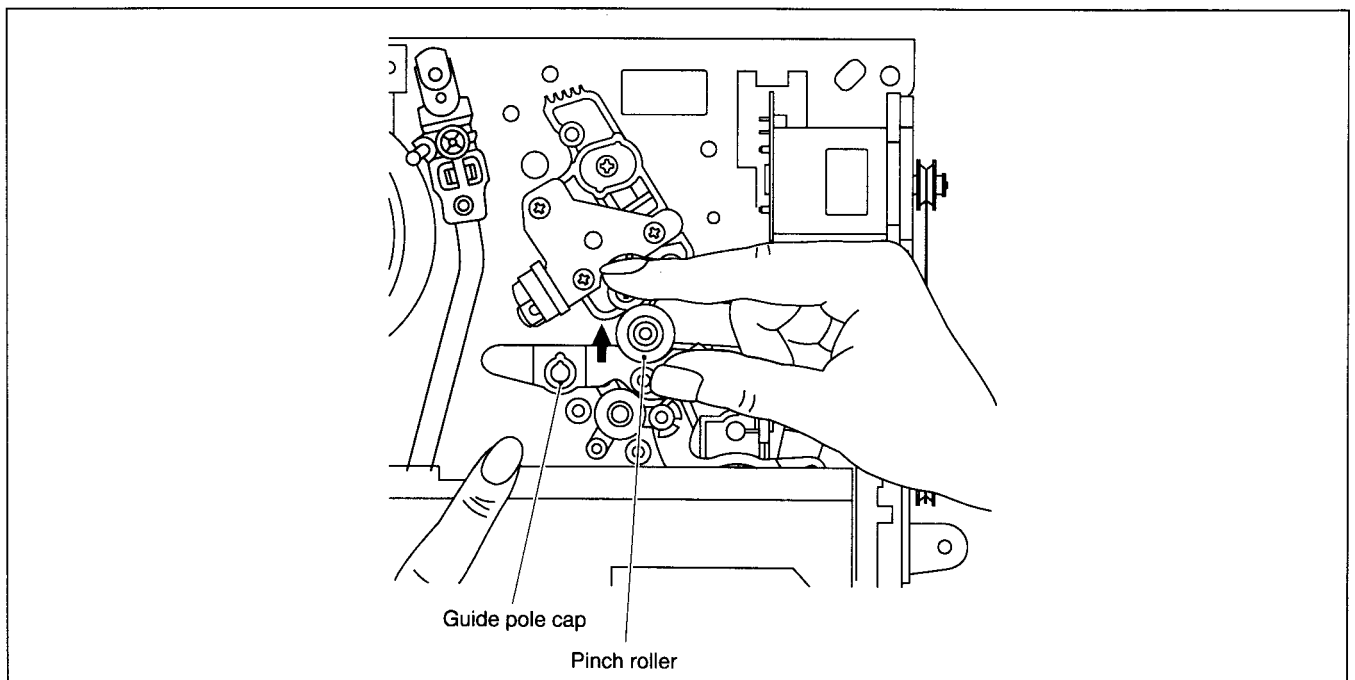


Fig. 2-1-4

2.1.4 Jigs and Tools Required for Adjustment

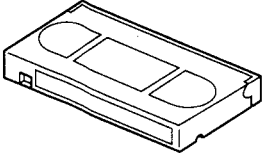
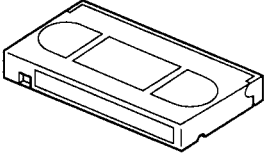
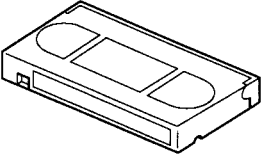
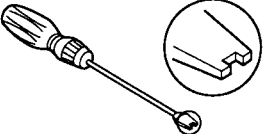
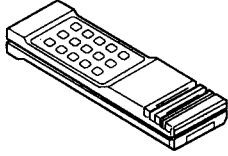
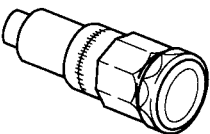
Alignment tape (SP) MHPE	Alignment tape (LP) MHPE-L	Back tension cassette gauge PUJ48076-2	A/C head position bit PTU94010
			
Roller driver PTU94002	Presetting unit PTU94008	Torque gauge PUJ48075-2	
			

Table 2-1-1 Jigs and tools required for adjustment

2.1.5 Maintenance and Inspection

1. Location of major mechanical parts

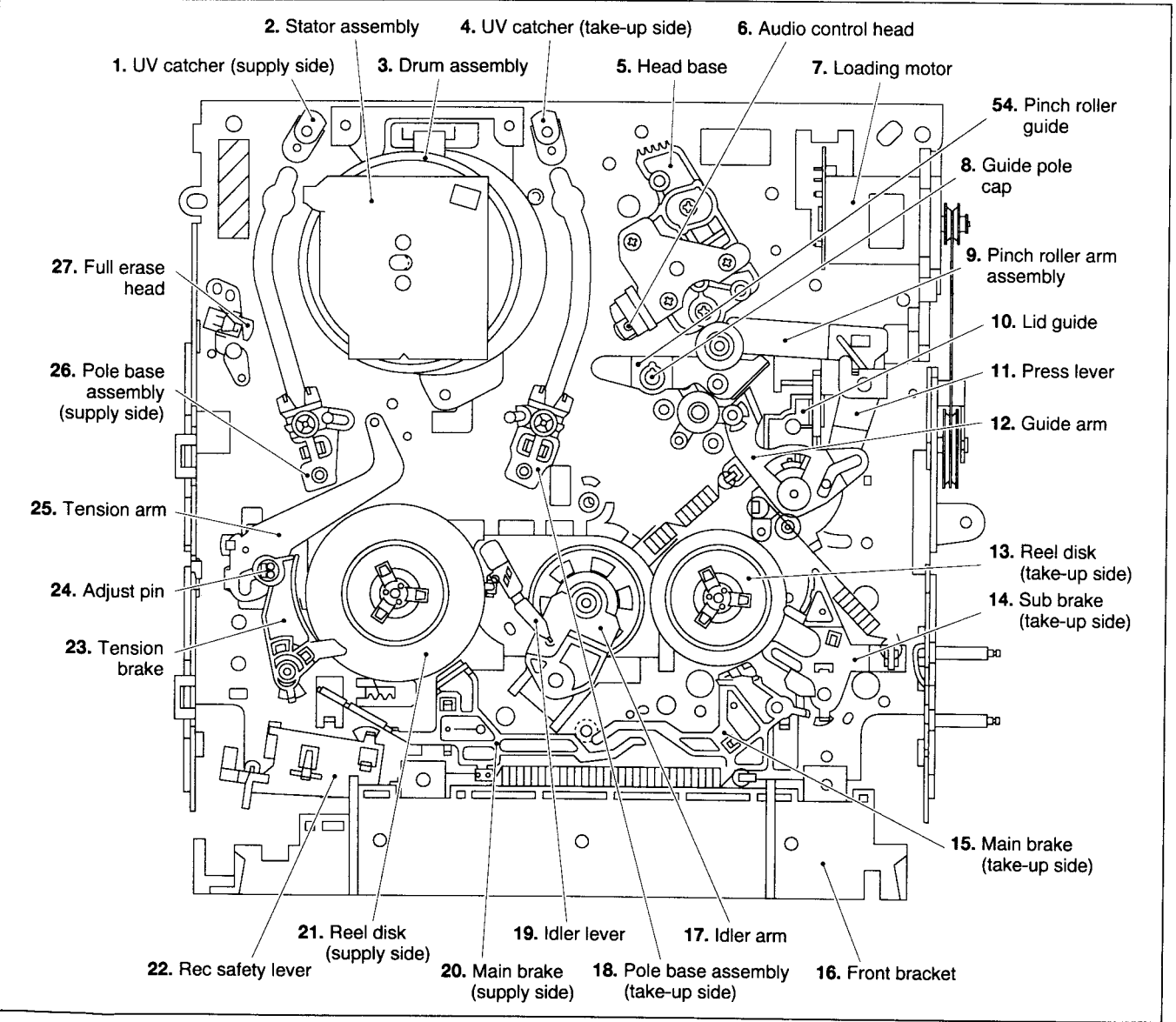


Fig. 2-1-5 Main deck top side

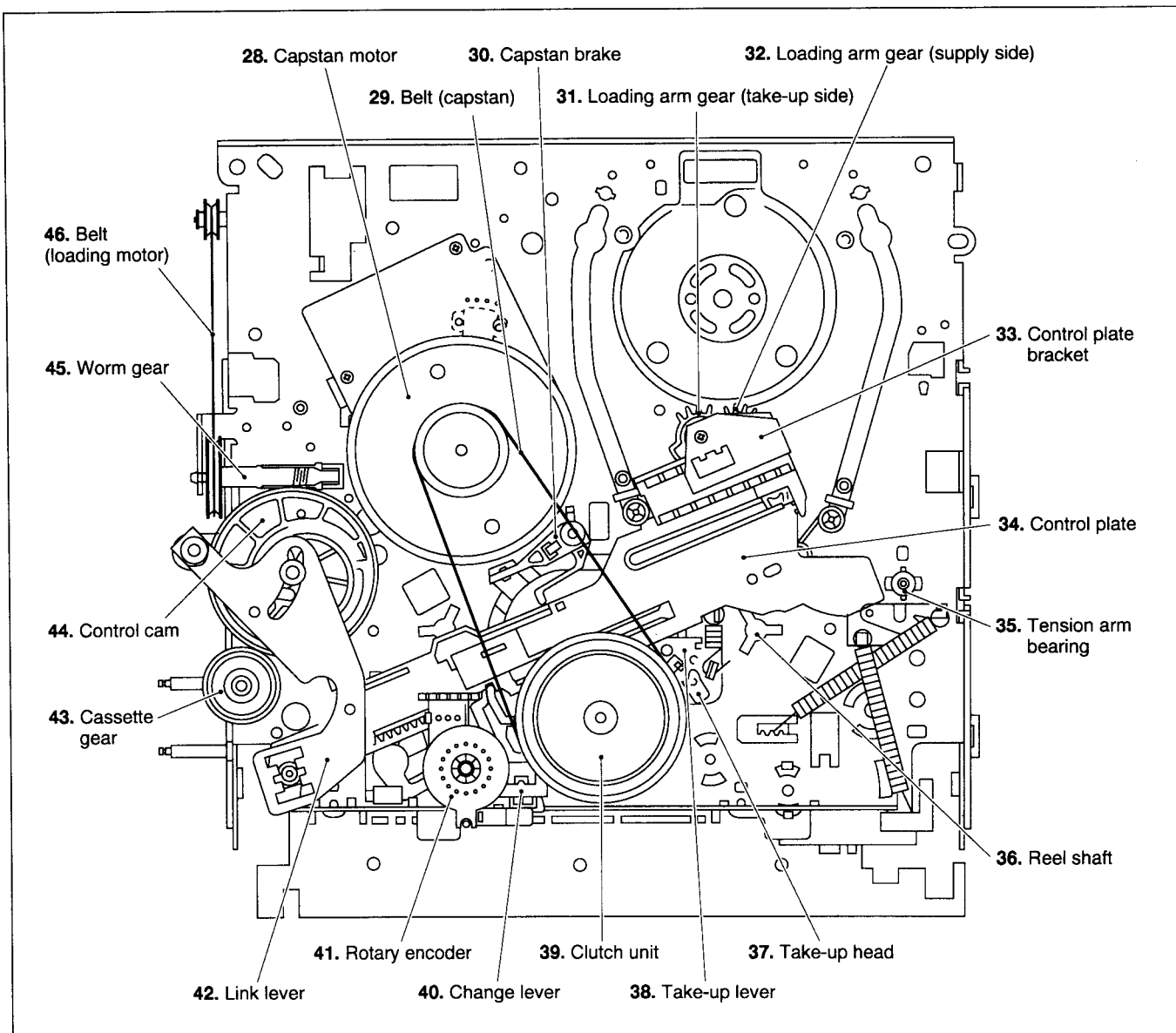


Fig. 2-1-6 Main deck bottom side

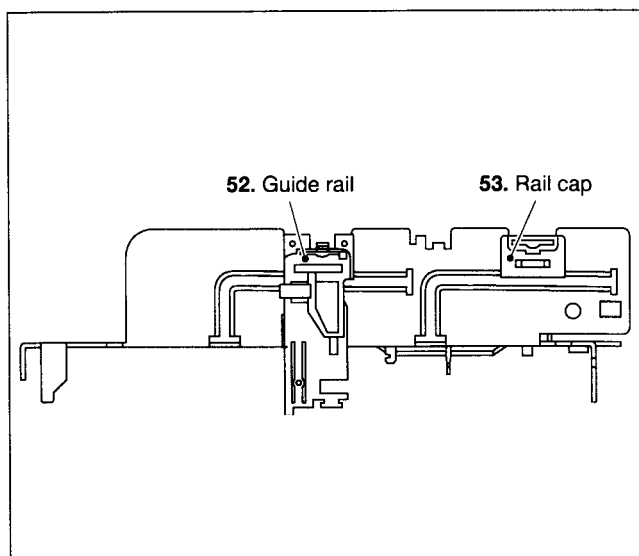


Fig. 2-1-7 Main deck left side

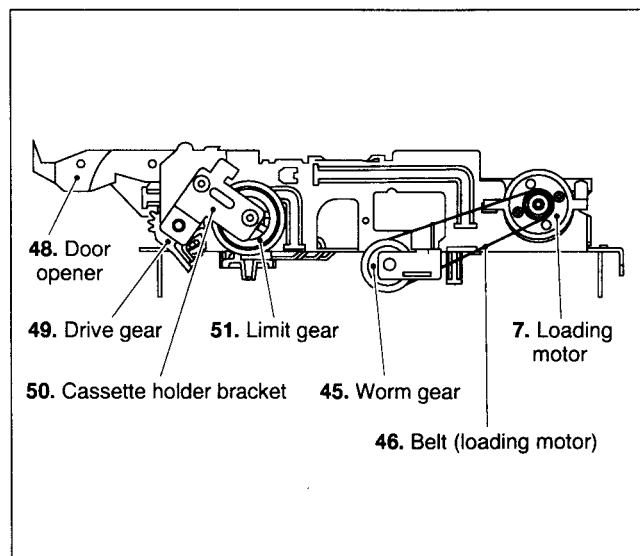


Fig. 2-1-8 Main deck right side

Note: Numerals at the start of the parts names are identical with those of the location diagrams of the major mechanical parts, 1 - 18 of which denote the order of removal. Of the alphabets T and B next to the parts names, T denotes removal from the main deck top side, B from the bottom side and T/B from both sides.

[illegible]

2. Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.

When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

- (1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth or Kimu-wipe with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.

Note: *Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.*

- (2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.
- (3) After cleaning, make sure that the cleaned parts are completely dry before using the video tape.

3. Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

- (1) See the mechanism assembly and disassembly diagrams (M4) for the lubricating or greasing spots. See Table 2-1-2 for the types of oil or grease to be used.

Type	Name	Serial No.	Symbols on the dis-assembly diagrams
Grease	Maltemp SH-P	KYODO-SH-P	AA
Oil	Cosmohydro HV56	COSMO-HV56	BB

Table 2-1-2 Grease and oil used for the unit

4. Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time, even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★○	○
	A/C head	★○	★○
	Lower drum assembly	★	★○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Capstan motor (Shaft)	★	★
	Guide arm assembly	★	★
Drive	Capstan motor		○
	Capstan brake		○
	Main brake		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Clutch unit		○
	Worm gear assembly		○
	Control plate		○
Other	Brush assembly	★○	★○
	Tension brake	○	○
	Rotary encoder		○

★: Cleaning

○: Inspection or Replacement if necessary

Table 2-1-3

2.2 REPLACEMENT OF MAJOR PARTS

2.2.1 Before Starting Disassembling

This unit is provided with a mechanism assembly mode. It is therefore necessary to enter this mode for assembling and disassembling procedures.
This mode is usually not in use, manually set it when it is required.

2.2.2 How to Set the Mechanism Assembling Mode

Remove the main deck assembly and place it bottom side up. (See SECTION 1 DISASSEMBLY). Turn the worm gear toward the front so that the register hole of the control cam is brought into alignment with the hole at the main deck assembly chassis. This position renders the mechanism assembling mode operational. Make sure that the control plate is located in alignment with the mark E. (See Fig.2-2-1)

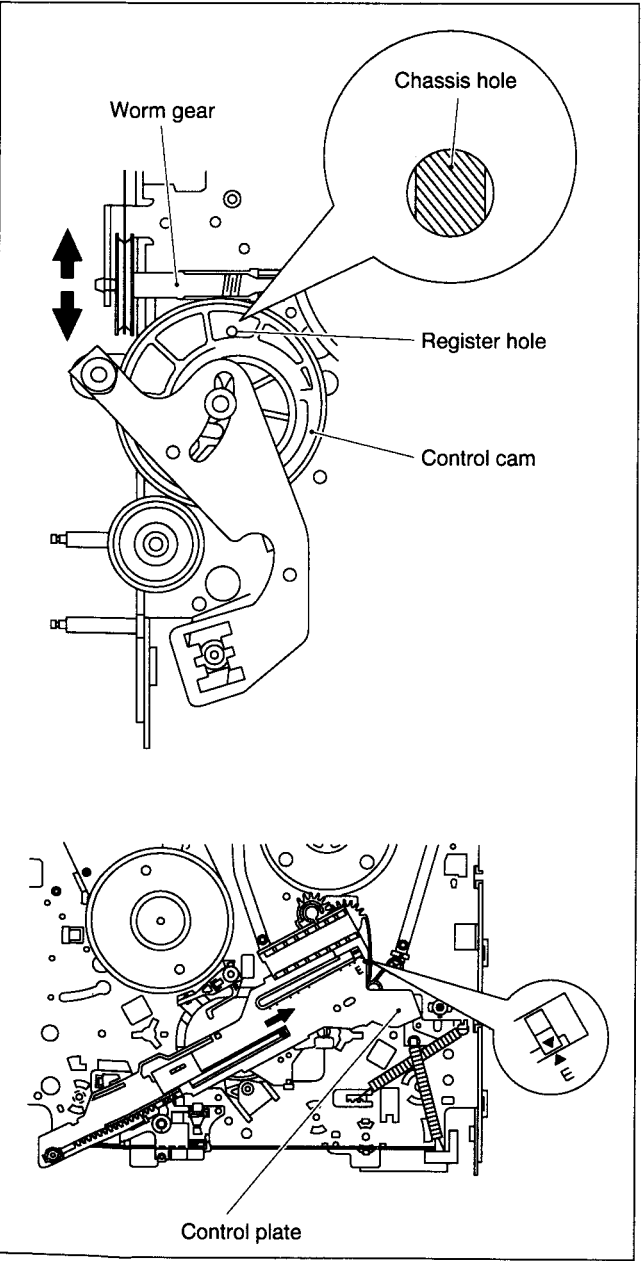


Fig. 2-2-1

2.2.3 Cassette Holder Assembly

1. How to remove

- (1) Remove the guide rail and rail cap. (See Fig.2-2-2).
(2 lugs on the guide rail and one lug on the rail cap)

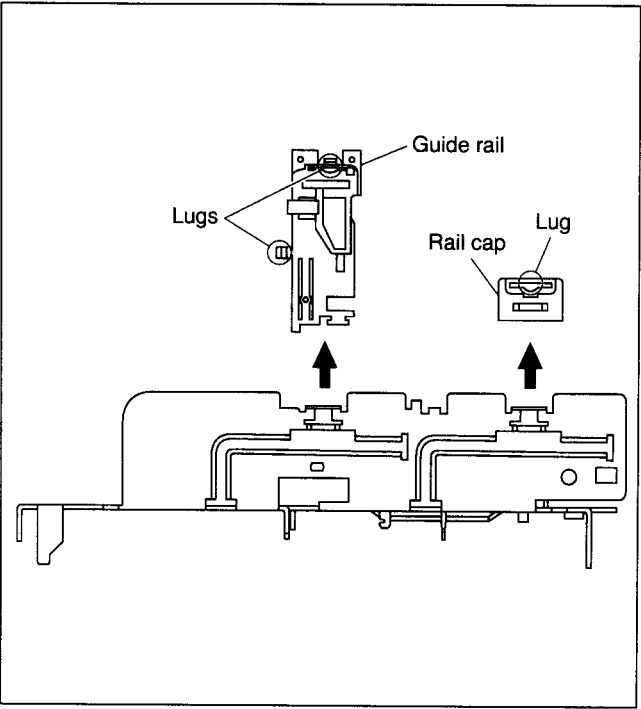


Fig. 2-2-2

- (2) Remove the two slit washers and remove the cassette holder bracket. (See Fig.2-2-3)
- (3) Remove the opener guide, relay gear and limit gear. (See Fig.2-2-3)

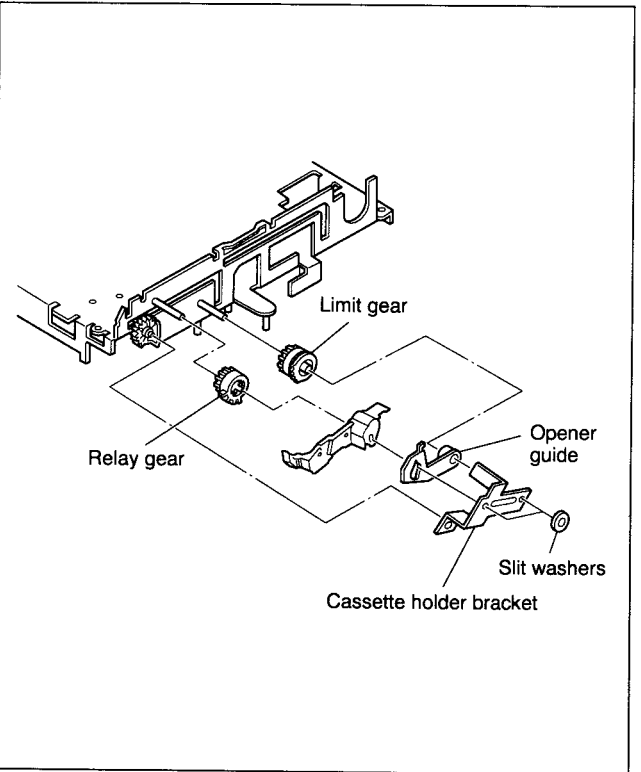


Fig. 2-2-3

(4) While swinging the lock levers (R) and (L) of the cassette holder assembly toward the front, slide the cassette holder assembly until its legs come to where the guide rail and the rail cap have been removed (so that the drive arm is upright). (See Fig.2-2-4)

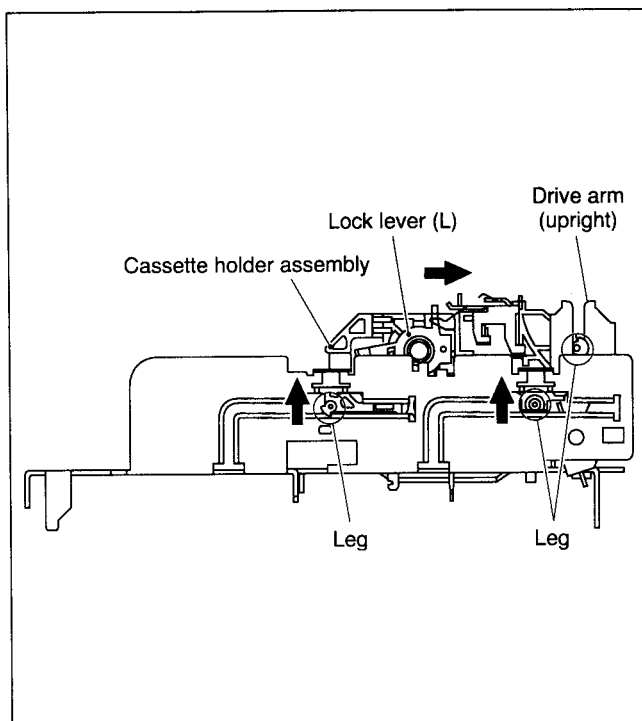


Fig. 2-2-4

(5) While holding the left side of the cassette holder, lift the cassette holder assembly so that the three legs on the left side are all released. Then pull the legs ① and ② on the right side out of the rail and also pull up the leg ③. (See Fig.2-2-5, Fig.2-2-6)

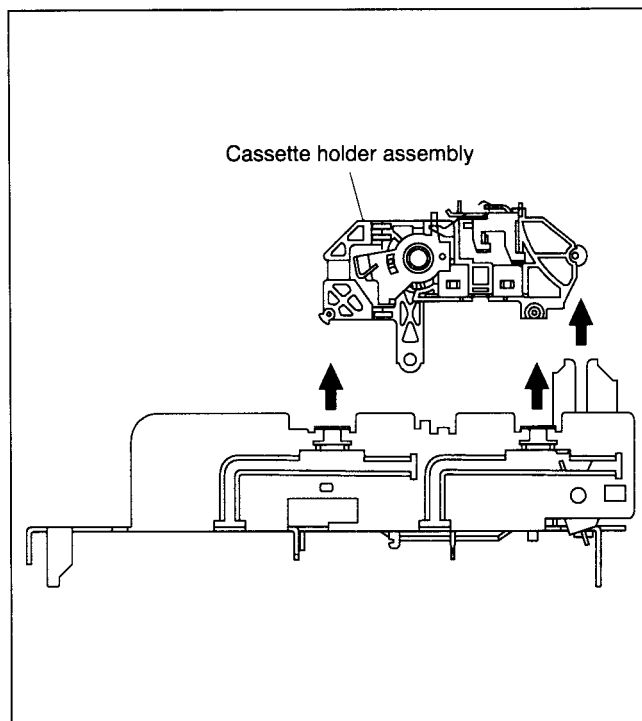


Fig. 2-2-5

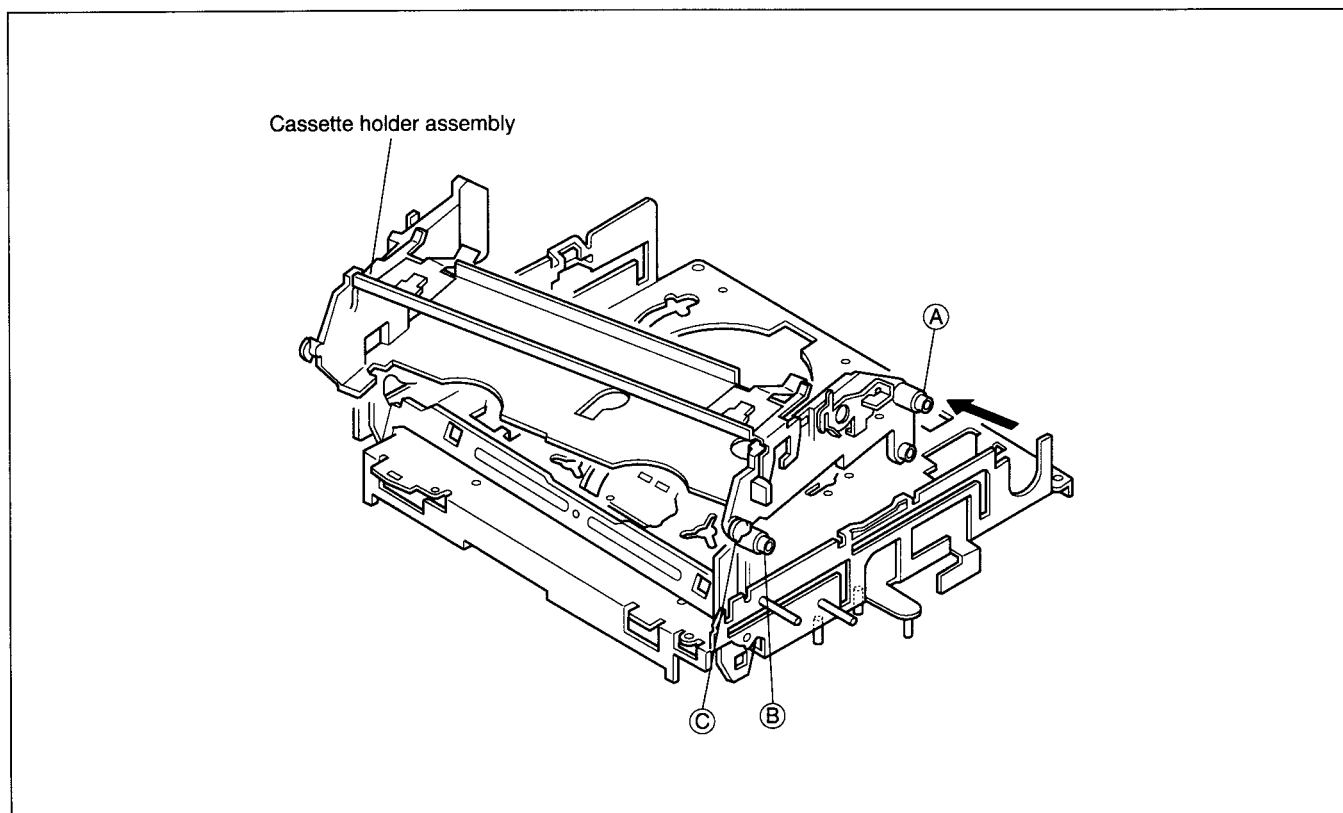


Fig. 2-2-6

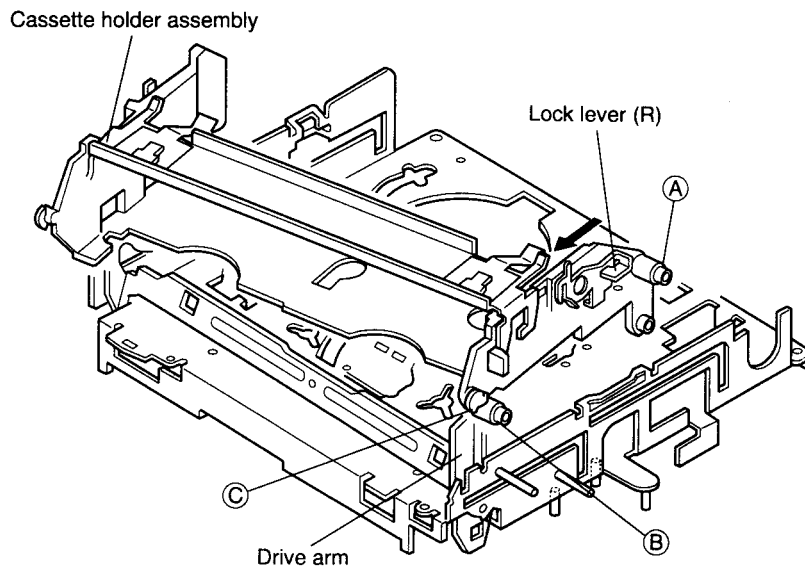


Fig. 2-2-7

2. How to install

- (1) Hold the drive arm upright and fit the leg ③ on the right side of the cassette holder assembly into the groove. (See Fig.2-2-7)
- (2) While swinging the lock lever (R) of the cassette holder assembly toward front, put the legs ① and ② into the rail. (See Fig.2-2-7)
- (3) Drop the three legs on the left side of the cassette holder into the groove at one time. (See Fig.2-2-8)
- (4) Slide the whole cassette holder toward the front to bring it to the eject end position.
- (5) Install the limit gear so that the notch on the outer circumference of the limit gear is brought into alignment with the register hole on the main deck. (See Fig.2-2-9)
- (6) Install the relay gear so that the notch on the outer circumference of the relay gear is brought into alignment with the notch on the main deck. It is important at this stage that the register hole at the limit gear, the register hole at the relay gear and the register hole at the drive gear are all in alignment. (See Fig.2-2-9).
- (7) Install the door stopper, opener guide and cassette holder bracket and fasten the two slit washers.

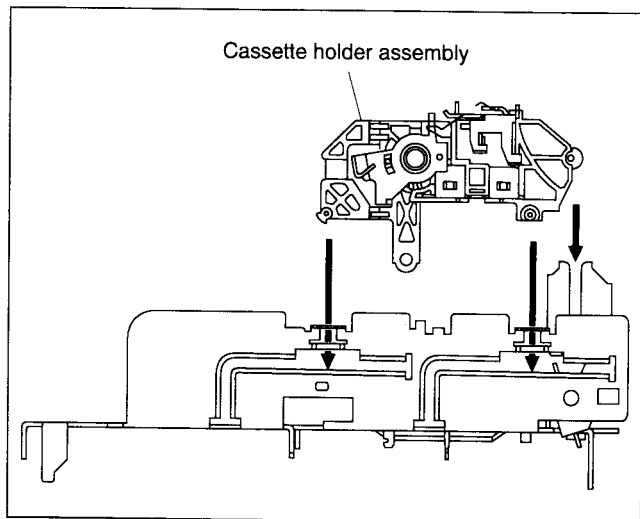


Fig. 2-2-8

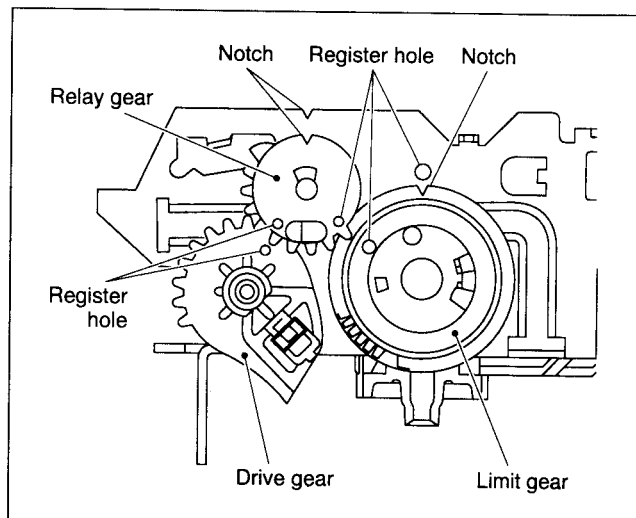


Fig. 2-2-9

2.2.4 Pinch Roller Arm Assembly

1. How to remove

- (1) Remove the spring from the hook of the press lever.
- (2) Remove the slit washer and remove the pinch roller seat. (See Fig.2-2-10)
- (3) Remove the pinch roller arm assembly by pulling it up.

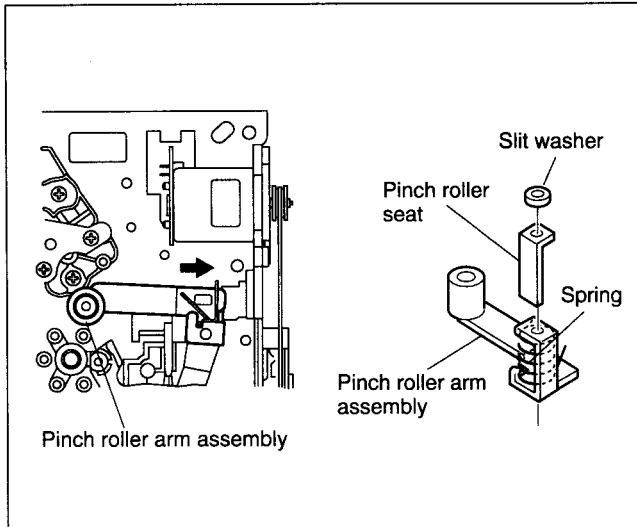


Fig. 2-2-10

2.2.5 Guide Arm and Press Lever

1. How to remove

- (1) Remove the spring and expand the lug of the lid guide in the arrow-indicated direction. Then remove the guide arm by pulling it up.
- (2) Remove the press lever by pulling it up. (See Fig.2-2-11)

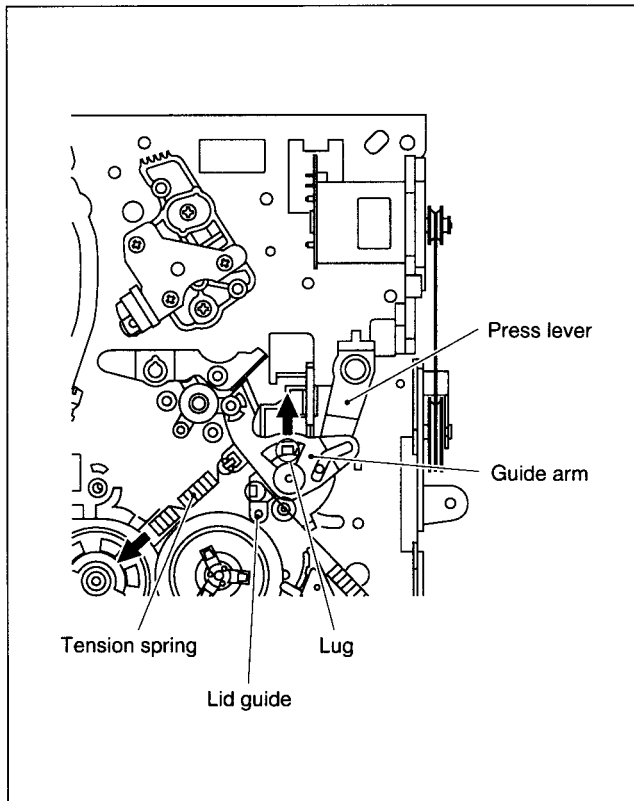


Fig. 2-2-11

2.2.6 Audio Control Head

1. How to remove

- (1) Remove two screws (A) and remove the audio control head together with the head base.

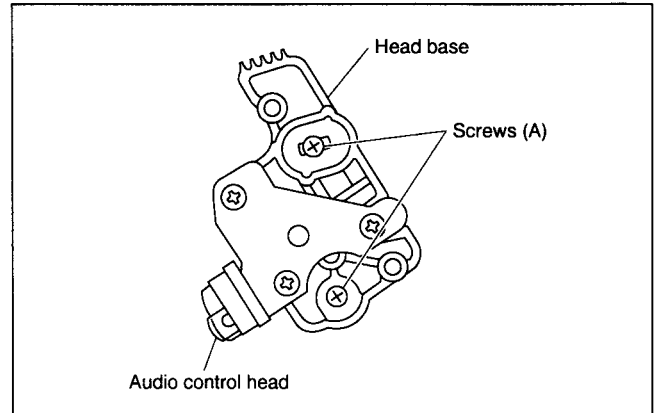


Fig. 2-2-12

- (2) When replacing only the audio control head, remove the three screws (B) while controlling the compression spring.

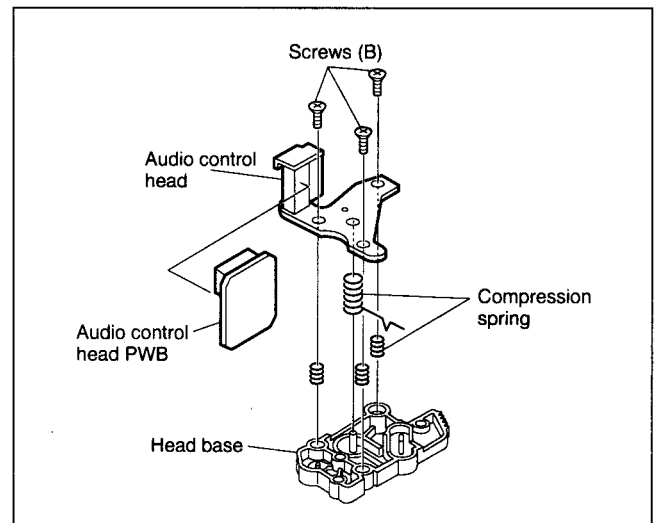


Fig. 2-2-13

2. How to install

- (1) To make the post-installation adjustment easier, set the temporary level as indicated in Fig.2-2-14. Also make sure that the screw center is brought into alignment with the center position of the slot.

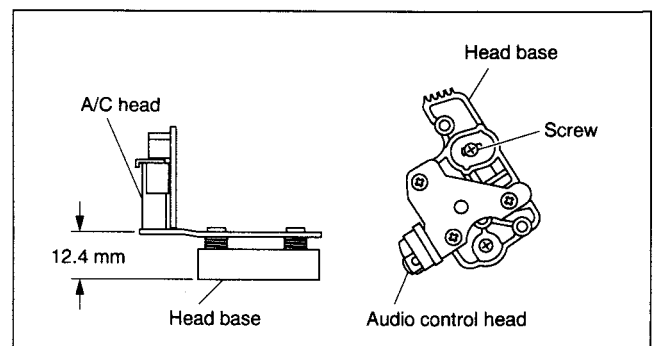


Fig. 2-2-14

2.2.7 Loading Motor

1. How to remove

- (1) Remove the belt wound around the worm gear.
- (2) Open the two lugs of the motor guide and remove the loading motor, loading motor PWB and motor guide altogether by pulling them up.
- (3) When replacing the motor base, take care with the orientation of the motor (so that the label faces upward).
- (4) When the motor pulley has been replaced, choose the fitting dimension as indicated in Fig.2-2-15.

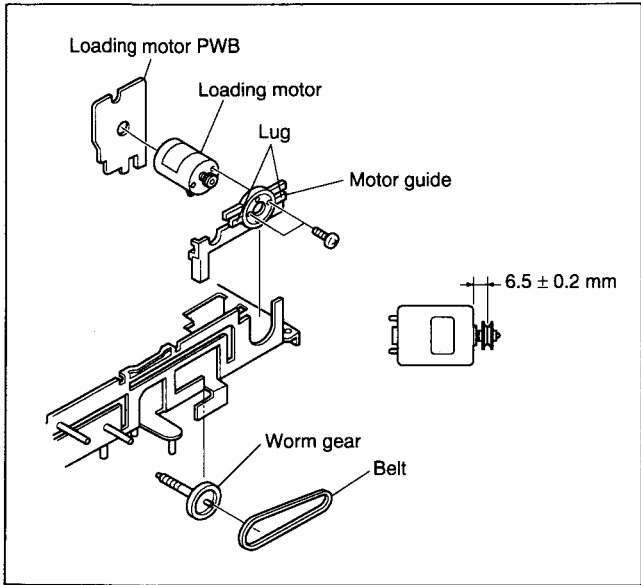


Fig. 2-2-15

2.2.8 Capstan Motor

1. How to remove

- (1) Remove the belt (capstan) on the main deck back side.
- (2) Remove one screw (A) and remove the pinch roller guide.
- (3) Remove two screws (B) and remove the capstan motor.

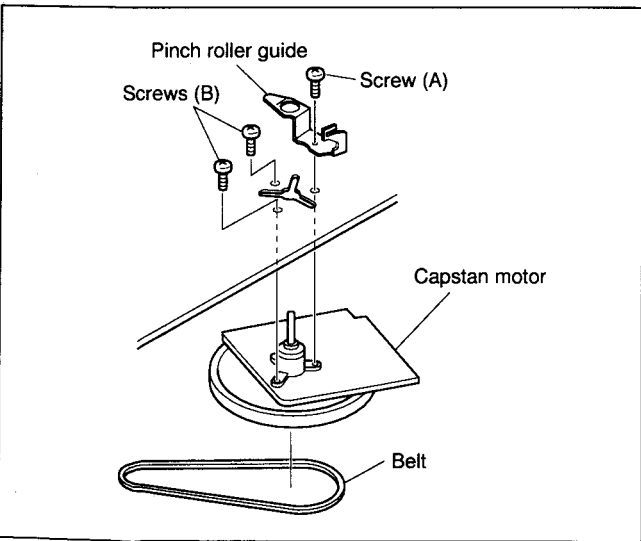


Fig. 2-2-16

2. How to install

Please refer to page 2-25.

2.2.9 Pole Base (on the supply or take-up side)

1. How to remove

- (1) Remove the UV catcher on the removal side by loosening one screw (A).
- (2) Remove the pole base on the supply side from the main deck by loosening one screw (B) on the main deck back side and sliding the pole base toward the UV catcher.
- (3) As for the pole base on the take-up side, turn the pulley of the loading motor to lower the cassette holder because the screw (B) is hidden under the control plate (See the "Procedures for Lowering the Cassette holder assembly" on page 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD). Further turn the motor pulley to move the cassette holder until the screw (B) is no longer under the control plate (in the half-loading position). Then remove it as done for the supply side by removing one screw (B).

NOTE: After reinstalling the Pole base and the UV catcher, be sure to perform compatibility adjustment.

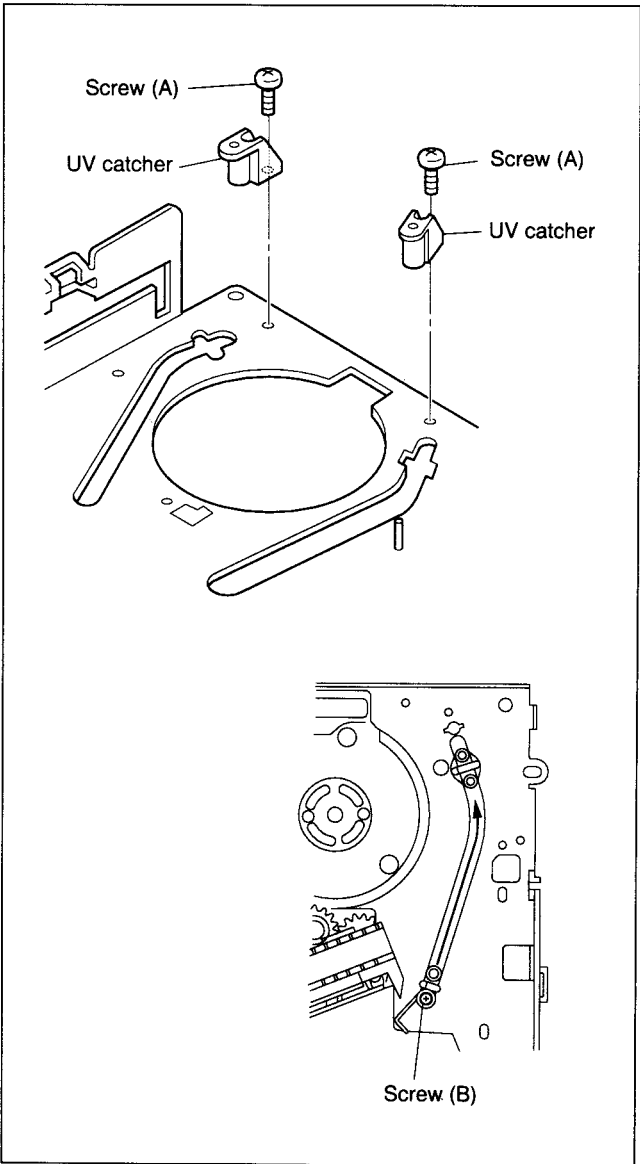


Fig. 2-2-17

2.2.10 Rotary Encoder

- (1) Remove one screw (A) and remove the rotary encoder by pulling it up.
- (2) When installing the rotary encoder, bring the register marks into alignment as indicated in Fig.2-2-18.

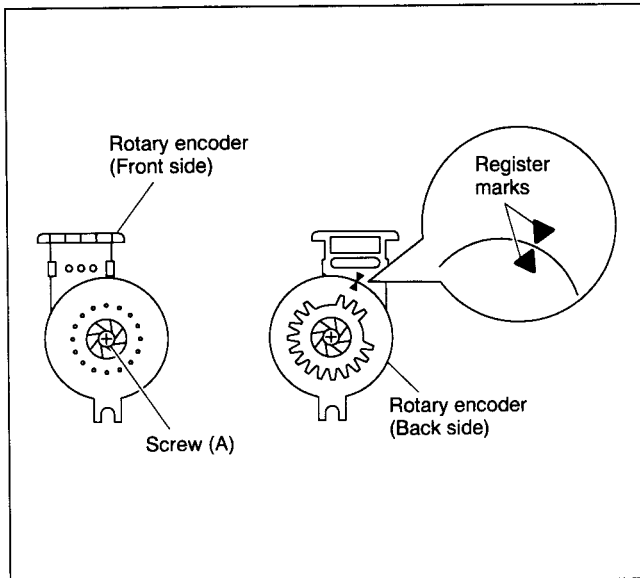


Fig. 2-2-18

2.2.11 Clutch Unit

- (1) Remove the belt wound around the capstan motor and the clutch unit.
- (2) Remove the slit washer and remove the clutch unit.

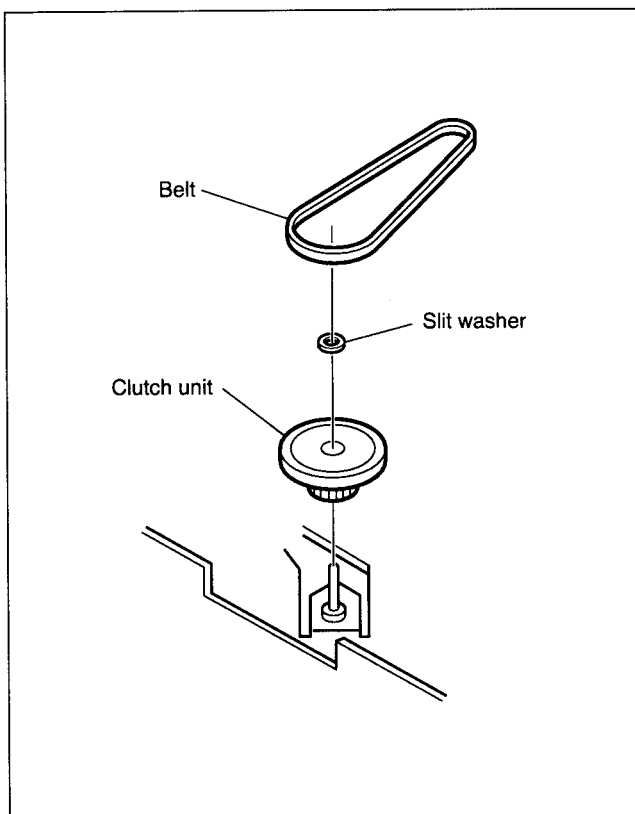


Fig. 2-2-19

2.2.12 Change Lever and Direct Gear

- (1) Release two lugs of the rotary encoder guide in the arrow-indicated direction and remove the change lever.
 - (2) Remove the slit washer retaining the direct gear and remove the latter.
- Take care of the two washers and one spring on and under the direct gear. (See Fig.2-2-20)

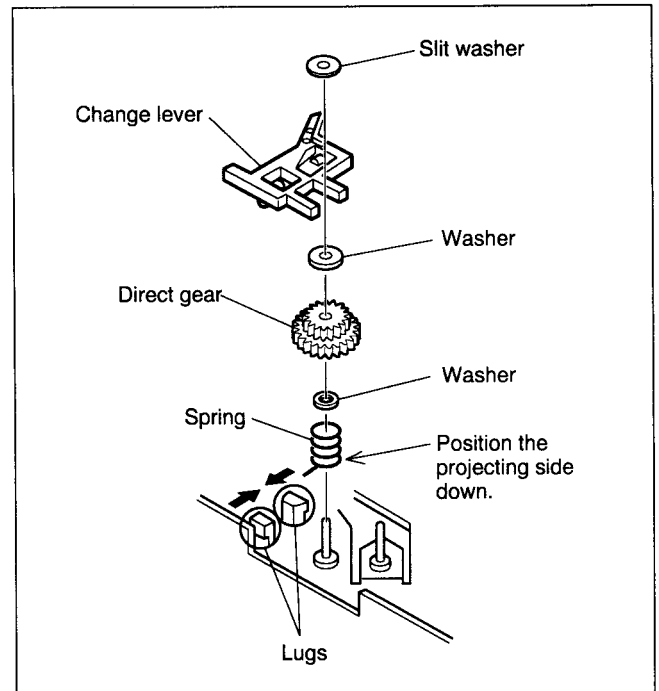


Fig. 2-2-20

2.2.13 Link Lever

- (1) Remove the two slit washers.
- (2) Remove the link lever by lifting it from the shaft retained by the slit washers. Then swing the link lever counterclockwise and remove it from the lock member of the control plate.

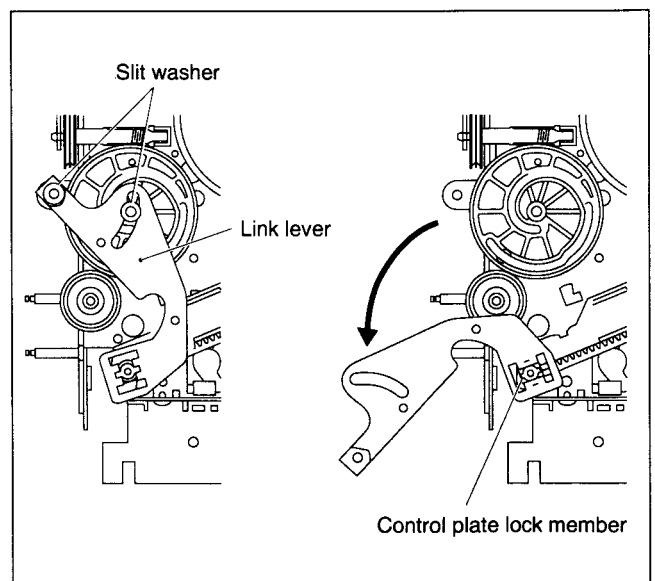


Fig. 2-2-21

2.2.14 Cassette Gear, Control Cam and Worm Gear

- (1) Remove the control cam by lifting it.
- (2) Open the two lugs of the cassette gear outward and pull the latter off.
- (3) Remove the belt wound around the worm gear and the loading motor.
- (4) Open the lug of the lid guide outward and remove the worm gear.
- (5) When installing the control cam, make sure that the register hole at the control cam is in alignment with the register hole of the main deck. (See Fig.2-2-22)

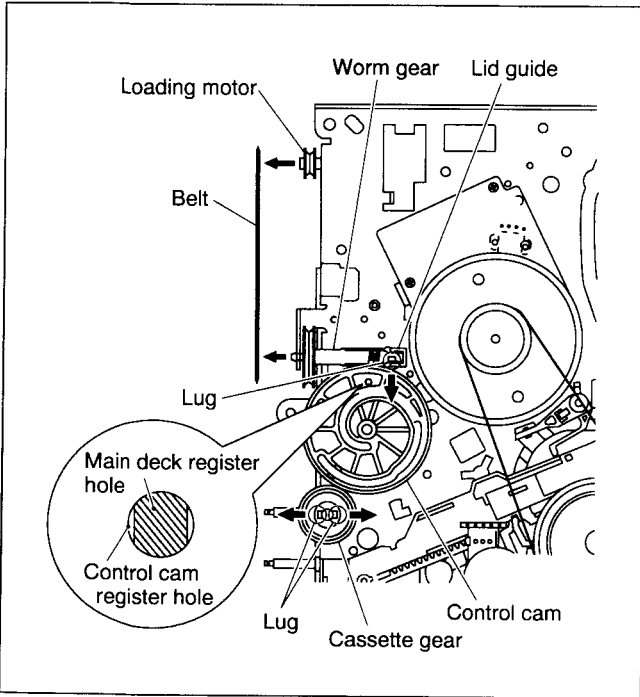


Fig. 2-2-22

2. How to install

- (1) Adjust the position of the idler arm pin as indicated in Fig.2-2-24. (to the left of center of the R section)
- (2) Bring the positioning hole of the take-up lever into alignment with the hole at the control plate guide and fix the position by inserting a 1.5 mm hexagonal wrench.
- (3) Press-fit the pole base (on the supply side) as indicated by the arrow and install the control plate so that section A of the loading arm gear shaft fits into hole (A) of the control plate, section B of the control plate guide into hole (B), and the control plate comes under section C of the rotary encoder guide and section D of the loading arm (on the take-up side). Then slide the whole control plate in the arrow-indicated direction. (See Fig.2-2-25).
- (4) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft. (See Fig.2-2-25)
- (5) Pull off the hexagonal wrench for positioning.

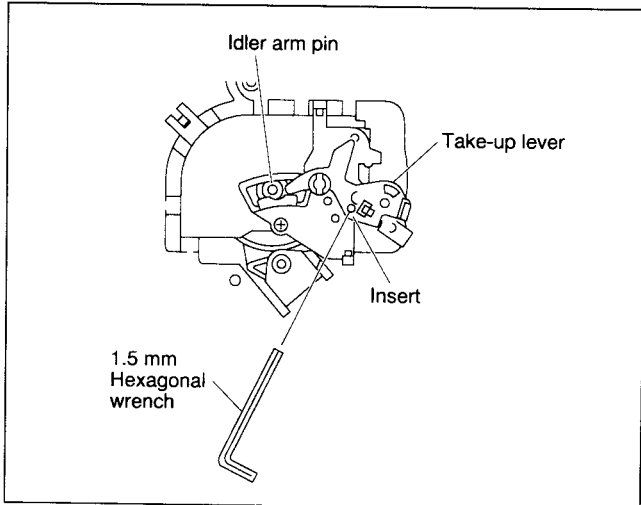


Fig. 2-2-24

2.2.15 Control Plate

1. How to remove

- (1) Remove one screw (A) retaining the control plate bracket and remove the latter.
- (2) Slide the control plate as indicated by the arrow and remove the control plate. (See Fig.2-2-23)

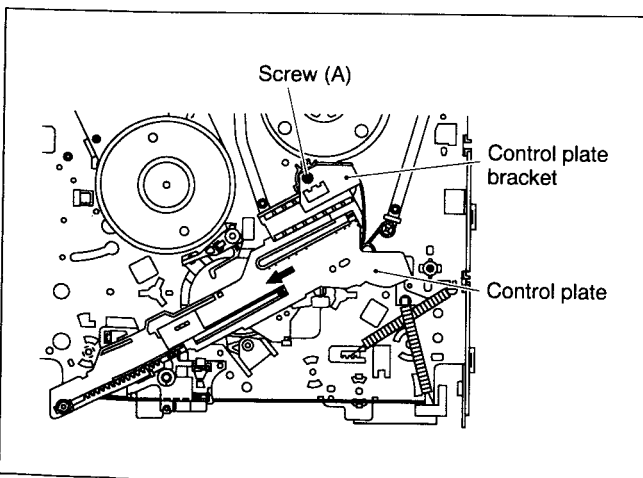


Fig. 2-2-23

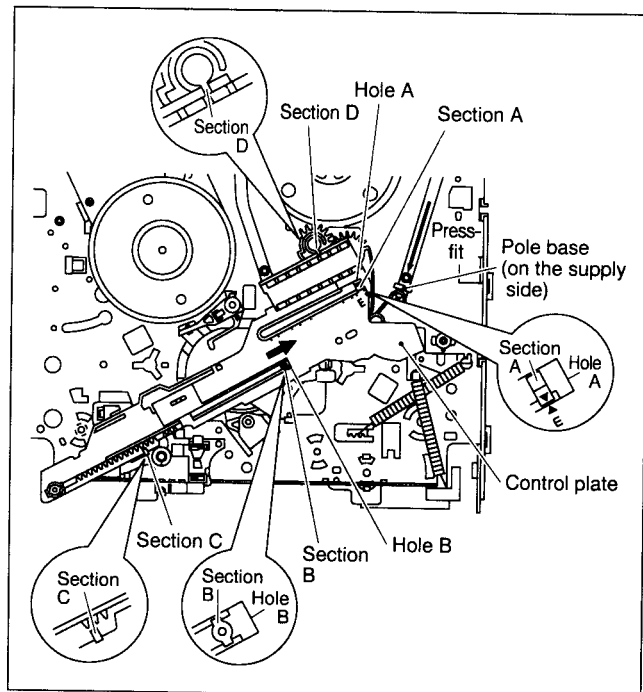


Fig. 2-2-25

2.2.16 Loading Arm (on the supply or take-up side) and Loading Arm Gear Shaft

1. How to remove

- (1) Remove the loading arm (on the supply side) by loosening screw (A) in Fig.2-2-26.
- (2) Remove screw (B) in Fig.2-2-26 and slide the pole base in the loading direction with the spring held on the pole base (on the take-up side). (See Fig.2-2-26)
- (3) Pull the spring out of the pole base. Turn the loading arm clockwise through about 45 degrees so that the notch of the loading arm is in alignment with the projection of the loading arm gear shaft and lift it. Likewise, turn the loading arm counterclockwise through 180 degrees so that the notch is in alignment with the projection and remove the loading arm (on the take-up side). (See Fig.2-2-27)
- (4) When removing the loading arm gear shaft, be sure of first removing the screw retaining the drum assembly (on the back side of the loading arm gear shaft). Then remove one screw (C) and remove the loading arm gear shaft by sliding it in the arrow-indicated direction.

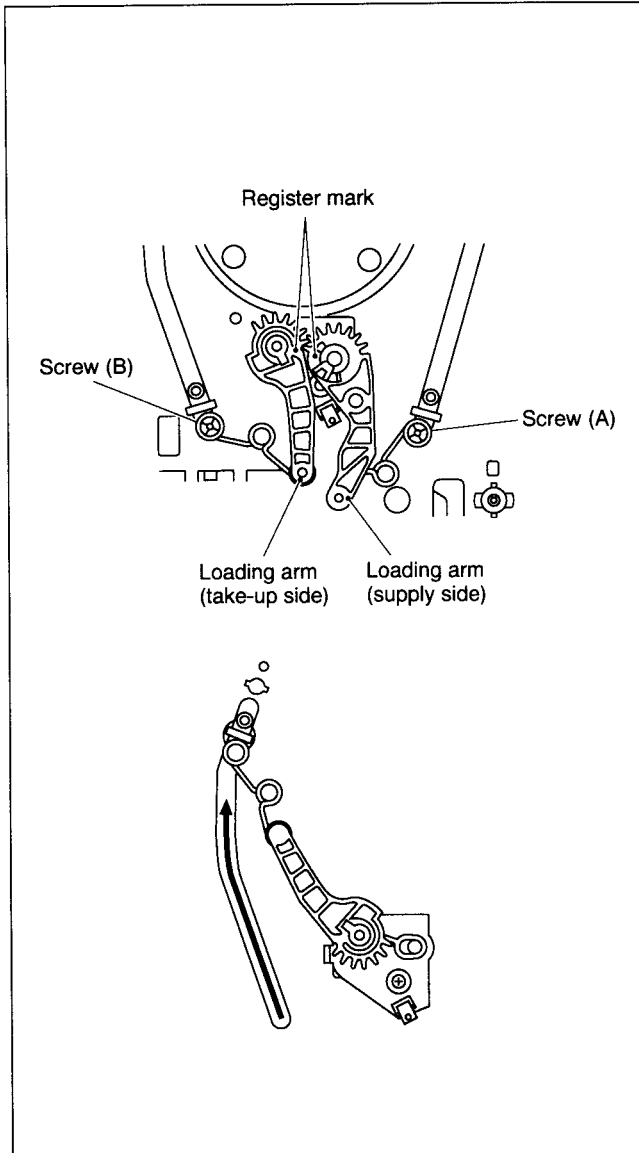


Fig. 2-2-26

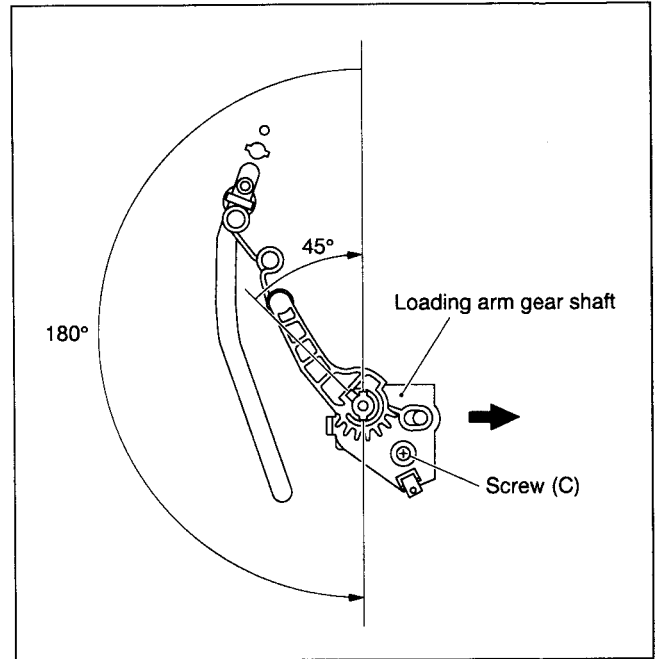


Fig. 2-2-27

2. How to install

- (1) Install the loading arm (on the take-up side) as indicated in Fig.2-2-28 and turn it clockwise through 180 degrees so that the loading arm reaches the bottom of the loading arm gear shaft.
- (2) Then turn the loading arm (on the take-up side) counterclockwise through 180 degrees. Hang the spring on the pole base and tighten the screw.
- (3) Install the loading arm (on the supply side) so that the register mark of the loading arm (on the take-up side) is in alignment with the register mark of the loading arm (on the supply side). Then hang the spring on the pole base and tighten the screw. (See Fig.2-2-26).

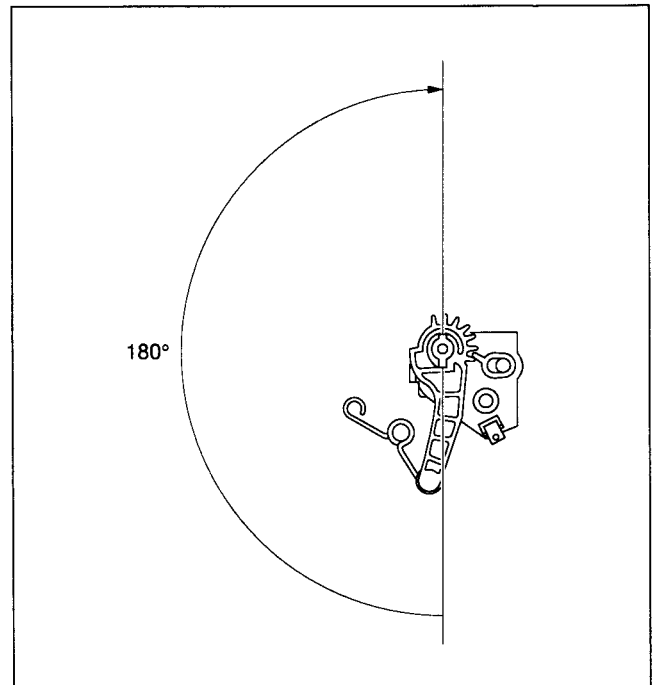


Fig. 2-2-28

2.2.17 Take-up Lever, Take-up Head and Control Plate Guide

- (1) Remove the spring of the take-up lever from the main deck.
- (2) Remove one lug of the take-up lever from the main deck and pull out the take-up lever and the take-up head together.
- (3) Remove one screw (A).
- (4) Remove two lugs of the control plate guide from the main deck. Locate the idler arm pin in the center of the R section of the control plate and remove the latter.

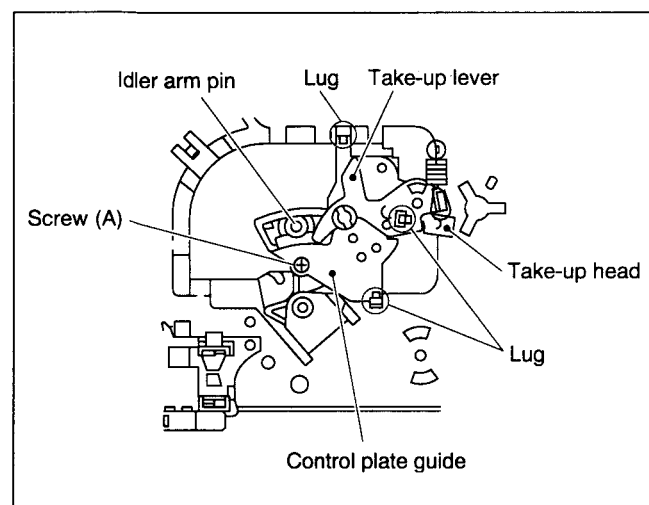


Fig. 2-2-29

2.2.18 Capstan Brake

- (1) Move lug A of the capstan brake in the arrow-indicated direction so that it comes into alignment with the notch of the main deck. (See Fig. 2-2-30)
- (2) Remove lug B of the capstan brake from the main deck and remove the capstan brake.

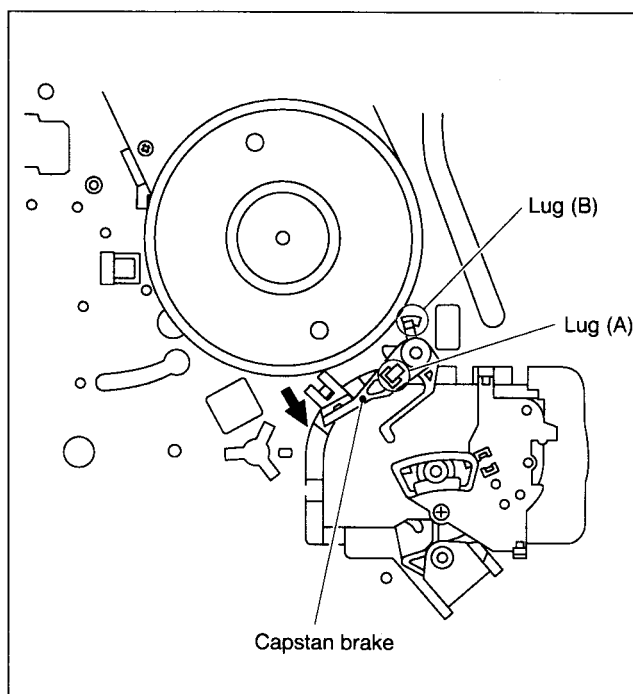


Fig. 2-2-30

2.2.19 Drive Gear and Drive Arm

1. How to remove

- (1) Remove the cassette holder assembly. (See 2.2.3 How to remove the cassette holder assembly)
- (2) Pull out the drive gear and remove the drive arm.

2. How to install

- (1) Insert section A of the drive arm into section B of the main deck.
- (2) Insert section ① of drive gear into hole ○ of the drive arm and section ② into hole □. (See Fig. 2-2-31)

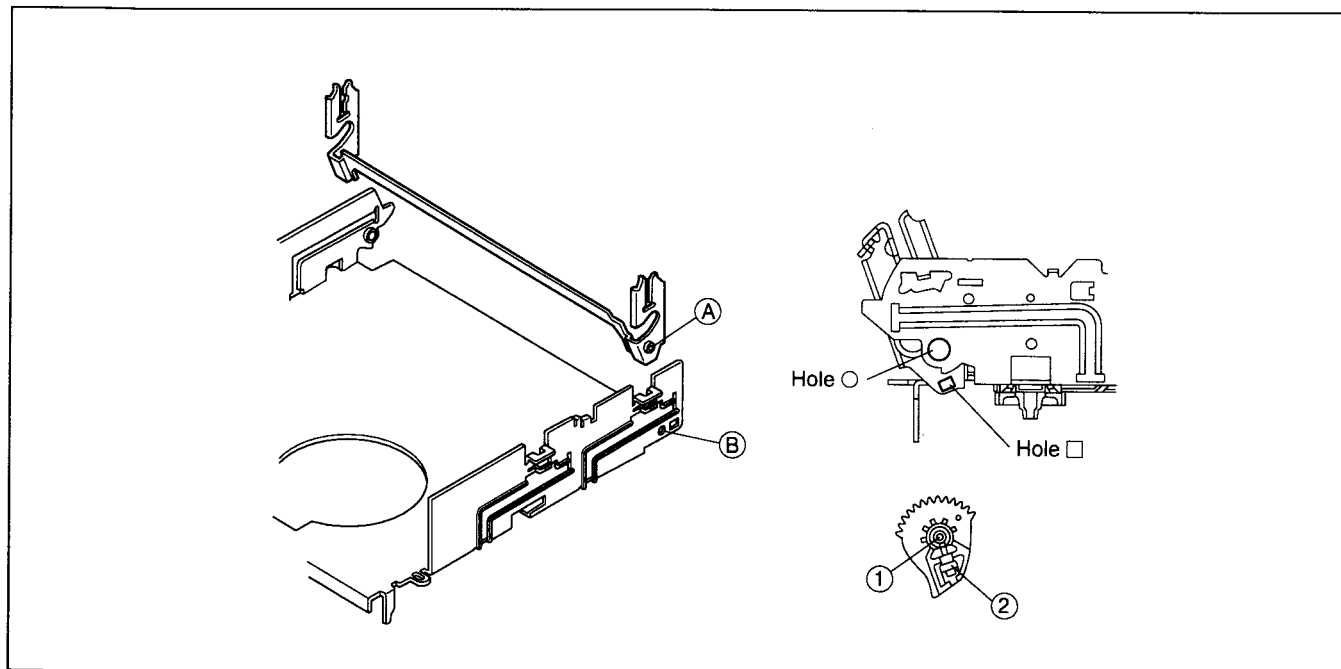


Fig. 2-2-31

2.2.20 Sub Brake (on the take-up side)

- (1) Remove the spring attached to the lid guide and sub brake.
- (2) Bring lug **A** of the sub brake into alignment with the notch of the main deck.
- (3) Remove lugs **B** and **C** of the sub brake from the main deck and remove the sub brake.

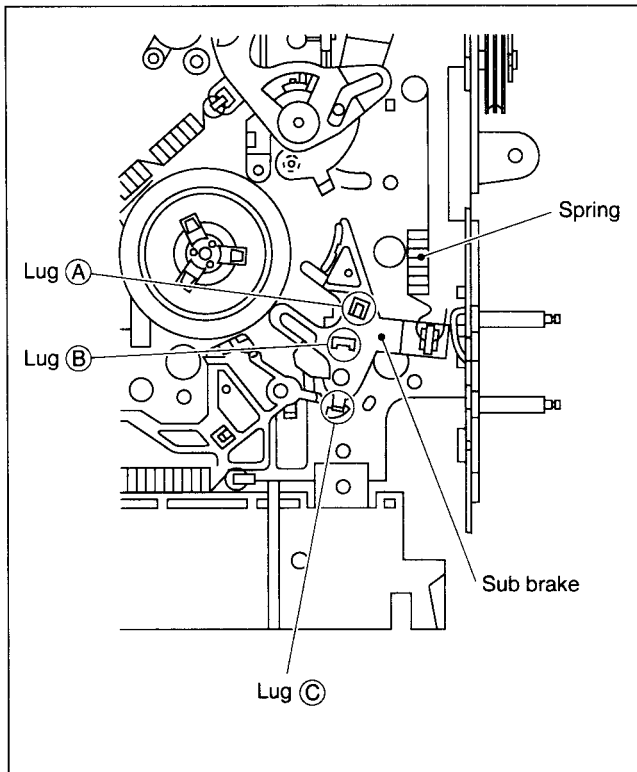


Fig. 2-2-32

2.2.21 Main Brake (on the take-up side), Reel Disk (on the take-up side) and Main Brake (on the supply side)

- (1) Move the main brake (on the take-up side) in the arrow-indicated direction and remove the reel disk (on the take-up side).
- (2) Remove the spring attached to the main brake.
- (3) Remove lug **A** of the main brake (on the take-up side) and pull out lug **B** after bringing it into alignment with the main deck notch.
- (4) Remove lugs **C** and **D** of the main brake (on the supply side) from the main deck and pull them off. (See Fig. 2-2-33)

Note: If the main brake is difficult to remove, press it and hold the adjustment pin from the back side of the main deck when attempting to remove it. After the adjustment pin has been removed or the main brake or the reel disk on the supply or take-up side have been replaced, it is required to adjust the main brake torque. See page 2-24 for the detailed adjustment procedures.

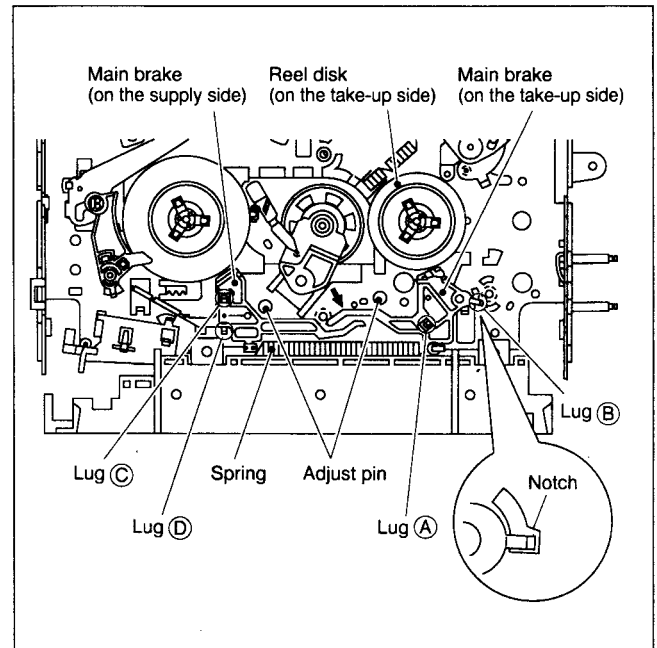


Fig. 2-2-33

2.2.22 Tension Brake, Reel Disk (on the supply side) and Tension Arm

- (1) Remove the three lugs of the tension brake from the main deck and pull them off.
- (2) Remove the reel disk (on the supply side) by loosening in the arrow-indicated direction the main brake (on the supply side).
- (3) Remove the tension spring on the main deck back side and remove the lugs of the tension arm bearing to pull up and remove the tension arm. (See Fig. 2-2-34)

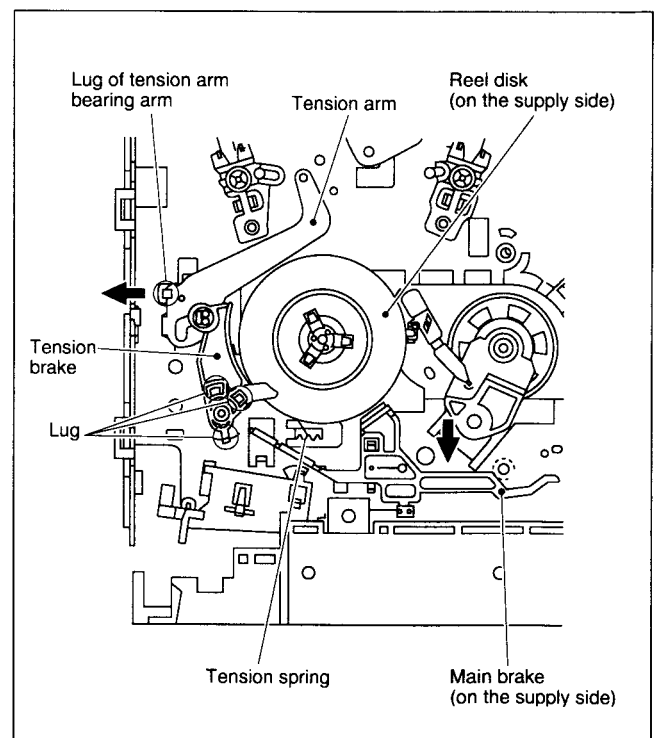


Fig. 2-2-34

2.2.23 Idler Lever, Idler Arm and Reel Shaft

- (1) Remove one lug of the idler lever from the main deck and remove the hook fitted in the idler arm hole by lifting it.
- (2) Remove the slit washer and pull out the idler arm.
- (3) Turn the reel shaft counterclockwise through 60 degrees and remove it. (See Fig.2-2-35)

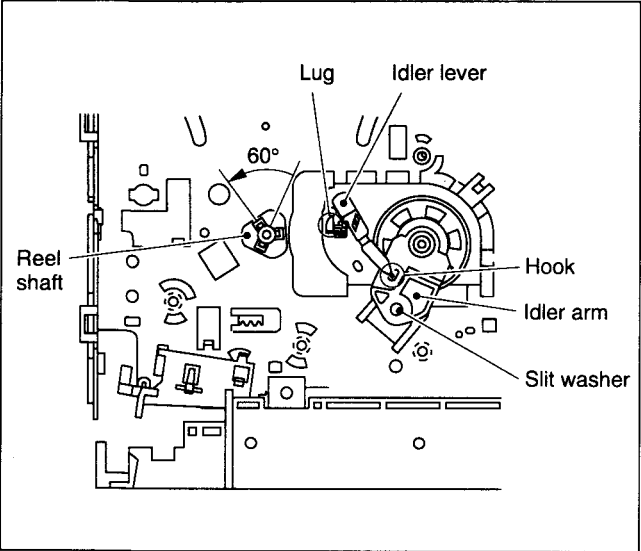


Fig. 2-2-35

2.2.24 Stator Assembly

- (1) Remove two screws (A).
- (2) Remove the stator assembly by lifting in the arrow-indicated direction (Take care that the brush spring does not jump out).
- (3) Remove the flat cable.
- (4) After installation, be sure to perform the 3.2.1 PB switching point adjustment according to the electrical adjustment procedure.

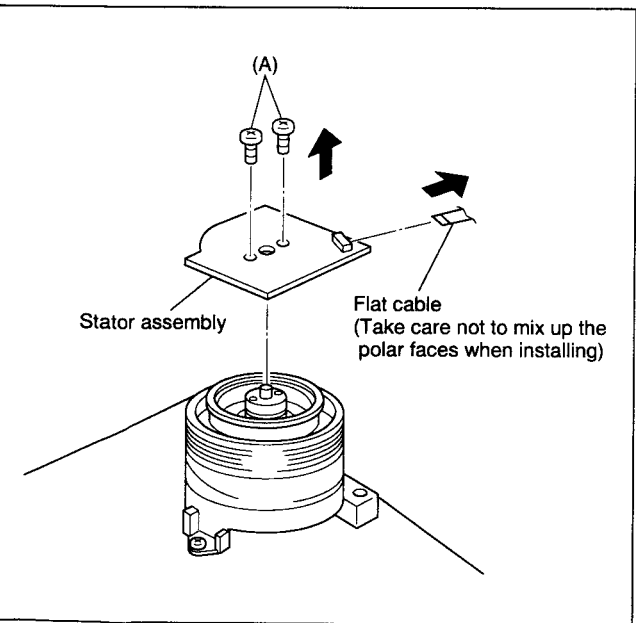


Fig. 2-2-36

2.2.25 Rotor Assembly

- (1) Remove the stator assembly.
- (2) Remove the two screws (B) and remove the rotor assembly.

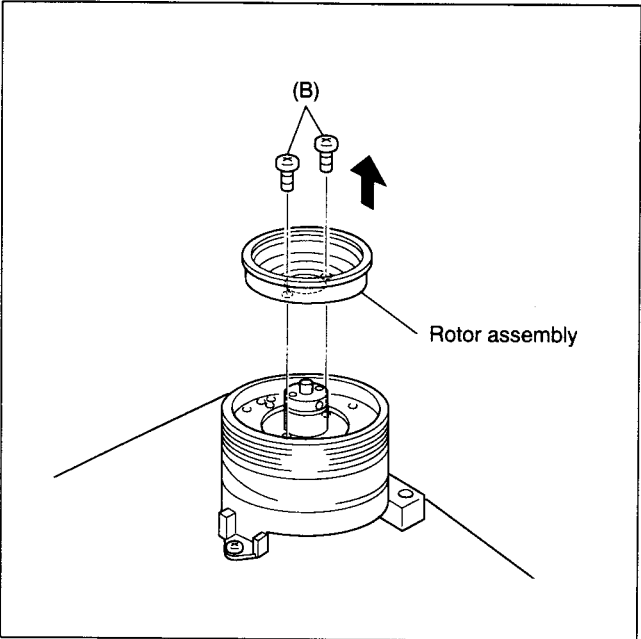


Fig. 2-2-37

Note: When installing the rotor assembly, note that a normal picture cannot be obtained without ensuring the phase matching as mentioned below.

- (3) Match the phases of the upper drum and the rotor assembly as indicated in Fig.2-2-38.
- (4) Place the upper drum hole (a) over the rotor assembly holes (b) (with three holes to be aligned) and tighten the two screws (B). (See Fig.2-2-38)

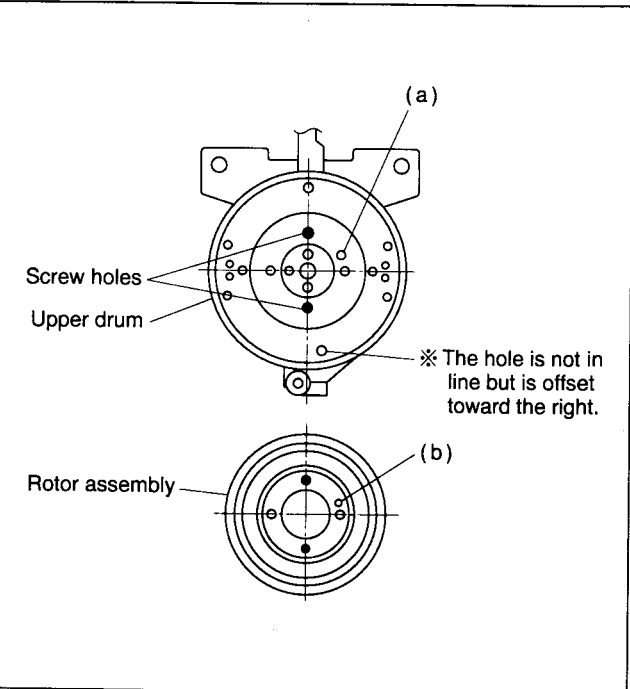


Fig. 2-2-38

2.2.26 Upper Drum Assembly

1. How to remove

- (1) Remove the stator assembly and rotor assembly. (See Fig. 2-2-36 and 2-2-37)
- (2) Loosen the screw of the collar assembly using a 1.5 mm hexagonal wrench and remove the collar assembly. Also remove the brush, spring and cap at one time.
- (3) Remove the upper drum assembly and remove the washer using tweezers.

Note: When replacement is required, control the up-down movement of the brush. Never apply grease.

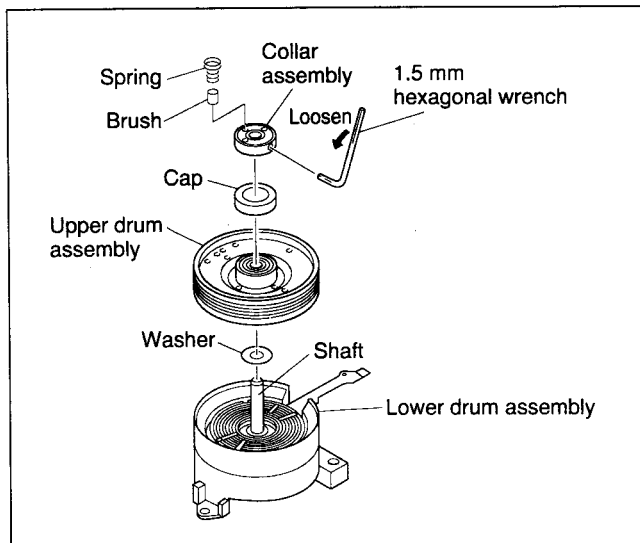


Fig. 2-2-39 Upper drum assembly-1

2. How to install

- (1) Clean coil parts of the lower drum assembly and the newly installed upper drum assembly with an air brush in advance. (See Fig.2-2-40).
- (2) Install a new washer and upper drum assembly on the drum shaft. (See Fig.2-2-39)

Note: When replacing the upper drum assembly, replace it together with the washer.

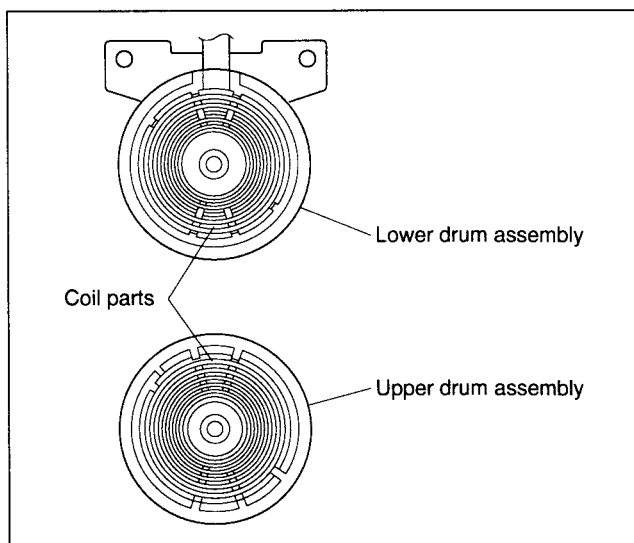


Fig. 2-2-40

- (3) Position the collar assembly as indicated in Fig.2-2-41 while controlling its up-down movement.

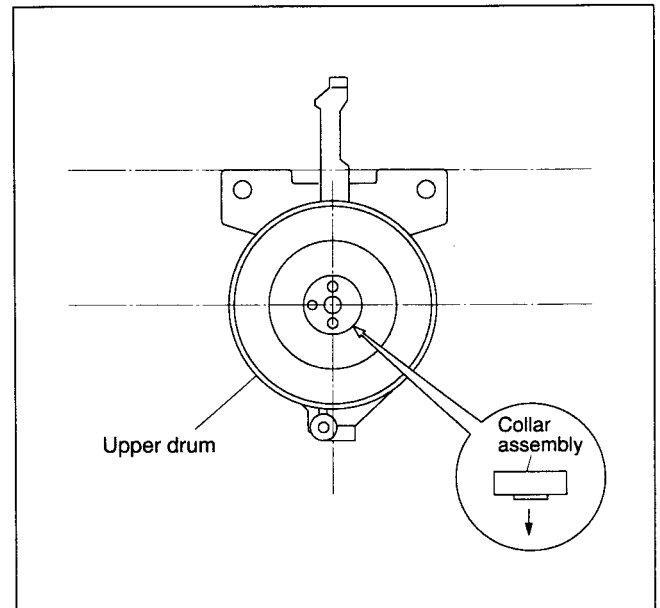


Fig. 2-2-41

- (4) Secure the collar assembly in position with a hexagonal wrench while pressing its top with the fingers.

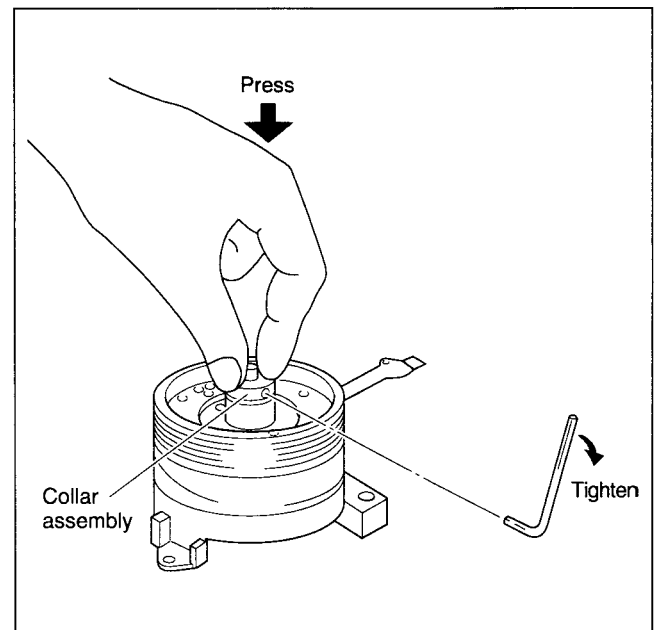


Fig. 2-2-42

- (5) After installation, gently turn the upper drum with your hand to make sure that it turns normally.
- (6) Install the rotor assembly and stator assembly according to Fig. 2-2-36 and 2-2-38.
- (7) When installation is complete, clean the upper drum assembly and lower the drum assembly and carry out the following adjustments.
 - PB switching point adjustment
 - Slow tracking adjustment
 - Compatibility adjustment (Be sure to check for compatibility for the EP mode.)

2.3 MAJOR PARTS INSTALLATION (PHASE MATCHING BETWEEN MECHANICAL PARTS)

2.3.1 Before Assembly of the Parts

The mechanism of this unit is closely linked with the rotary encoder and system controller circuits.

Since the system controller detects the status of mechanical operation in response to phases of the rotary encoder (internal switch positions), the mechanism may not operate properly unless such parts as the rotary encoder, control plate, loading arm assembly, control cam, cassette gear, limit gear, relay gear and drive gear are installed in their correct positions.

Especially, this model is not provided with any cassette housing assembly, so that cassette loading and unloading must be accomplished by operation of the cassette holder assembly. The latter is in turn driven by such parts as drive gear, relay gear and limit gear. Exercise enough care, therefore, to have the phases of all this gear matching one another.

Perform the installation of major parts (including phase matching) in the mechanism assembling mode as in the previous section.

2.3.2 Loading Arm Assembly (on the Supply or Take-up Side)

- (1) Return the pole base assembly to the foremost position in the unloading direction.
 - (2) Install the loading arm assembly so that the register mark on the gear of the supply side loading arm is in alignment with the one on the take-up side loading arm as indicated in Fig. 2-3-1.
- See 2.2.16 "2. How to install" of the foregoing section for details of installation.

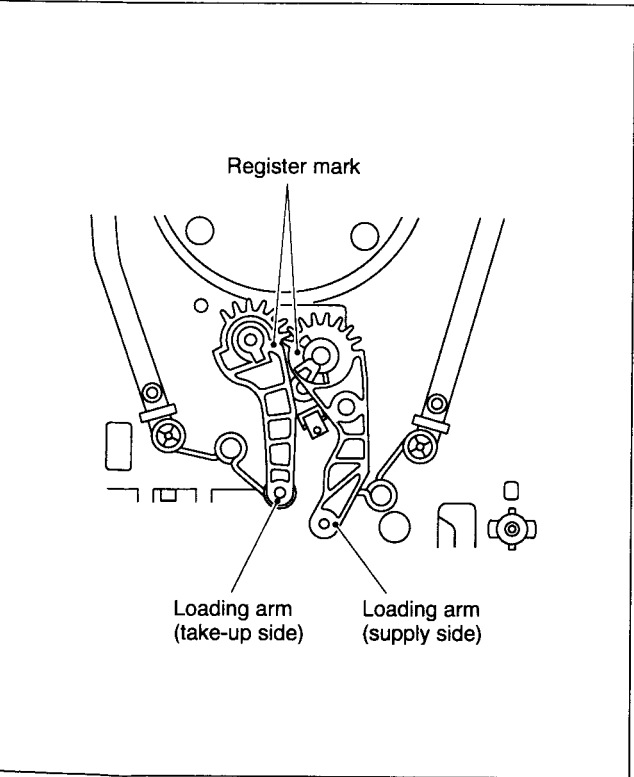


Fig. 2-3-1

2.3.3 Control Plate

- (1) With register marks on the both loading arm assemblies in alignment, install the control plate so that the mark ▼ on the loading arm gear shaft is in alignment with mark E of the control plate. (See Fig.2-3-2)
- See 2.2.15 "2. How to install" of the foregoing section for details of installation.

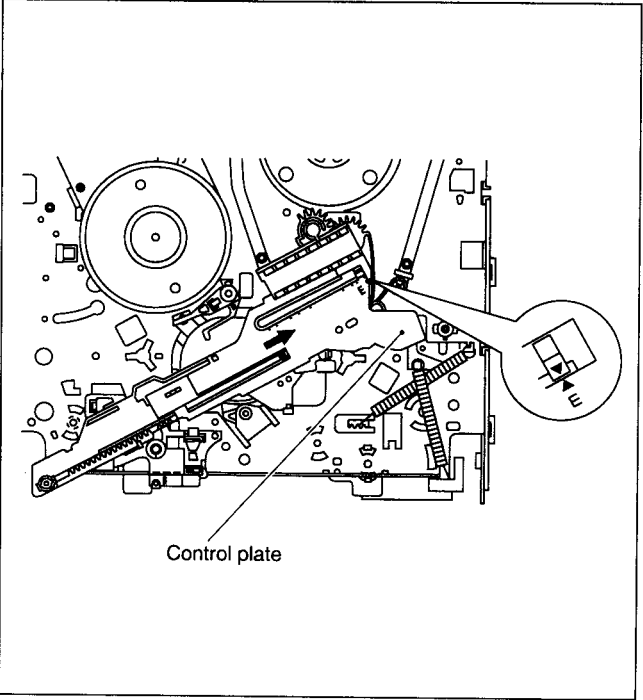


Fig. 2-3-2

2.3.4 Rotary Encoder

- (1) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft and bring the register marks on the rotary encoder into alignment as indicated in Fig.2-3-3.
- (2) Turn over the rotary encoder with its register marks kept in alignment and install it by fitting on the shaft of the rotary encoder guide and the positioning pin.
- (3) Tighten the screw (A) to complete the installation.

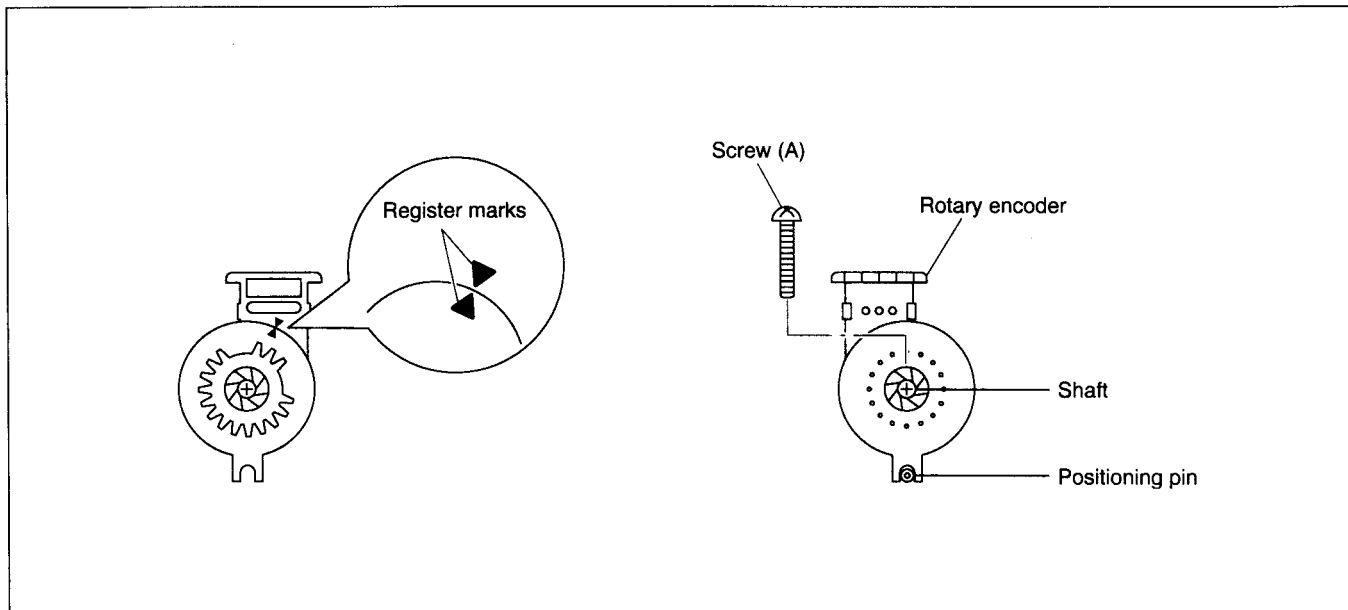


Fig. 2-3-3

2.3.5 Control Cam, Cassette Gear and Link Lever

- (1) Install the control cam as indicated in Fig.2-3-4 making sure of the front and back side alignment.
Note here that the register hole of the control cam is in alignment with and allows passage through the register hole of the main deck. Perform fine-adjustment by turning the worm gear.
- (2) Install the cassette gear by pushing it until it is locked with a clicking sound. (See Fig.2-3-4)
- (3) Insert section (A) of the link lever into section (B) of the control plate as shown in Fig.2-3-5.

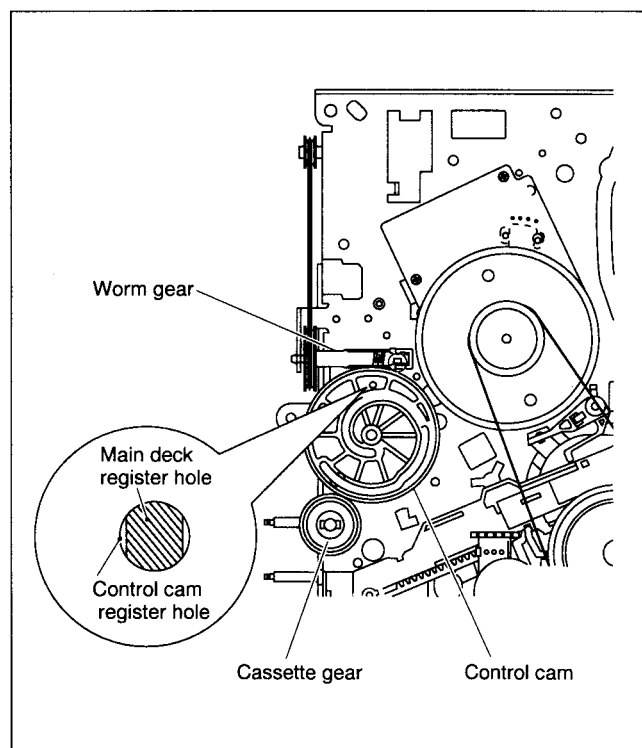


Fig. 2-3-4

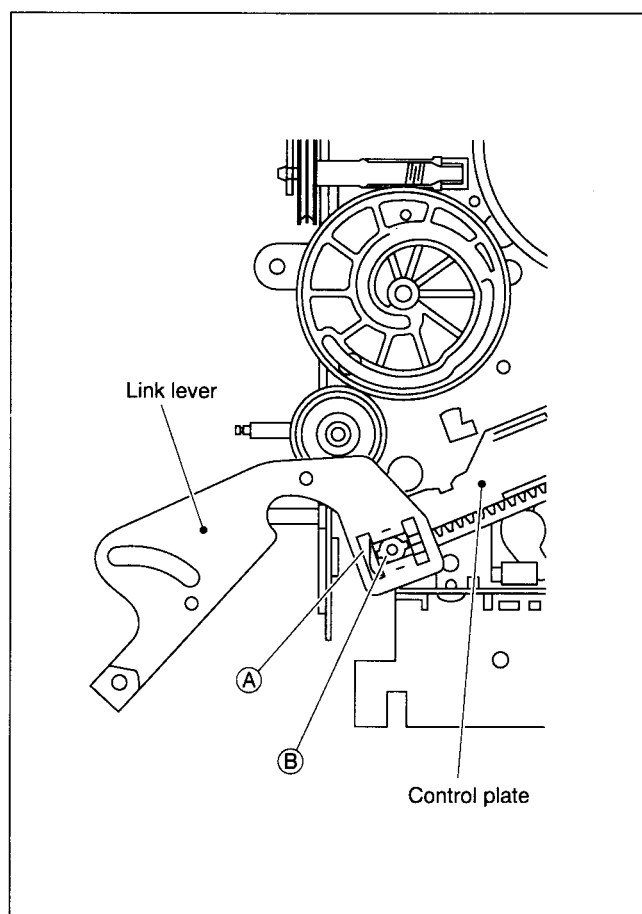


Fig. 2-3-5

- (4) Turn the link lever clockwise and mount it on the control cam center shaft (A) and the control cam left-side shaft (B). (See Fig.2-3-6).
- (5) Fasten the slit washers at two points (A) and (B).

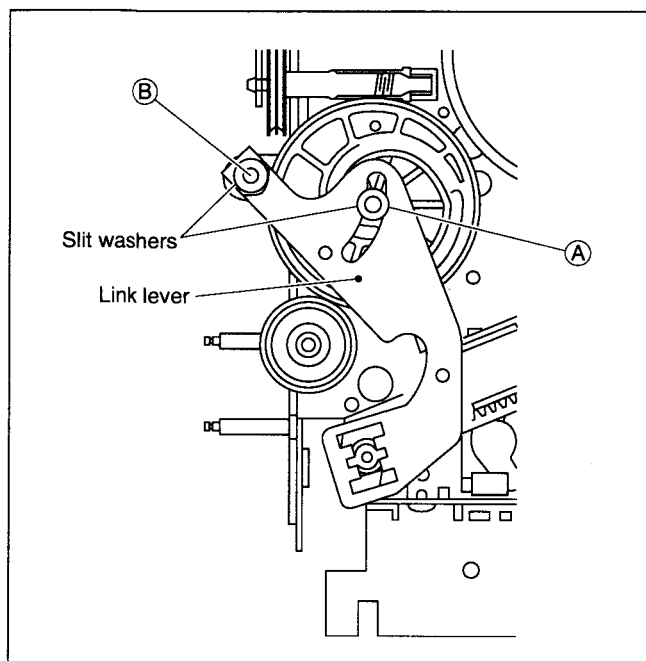


Fig. 2-3-6

2.3.6 Relay Gear, Limit Gear and Drive Gear

- (1) Install the limit gear so that the notch at its outer circumference is in alignment with the register hole of the main deck. (See Fig.2-3-7)
- (2) Install so that the notch at the outer circumference of the relay gear is in alignment with the notch of the main deck, and at the same time, that the hole A of the relay gear is in alignment with hole A of the limit gear and hole B of the relay gear with hole B of the drive gear. (See Fig.2-3-7)

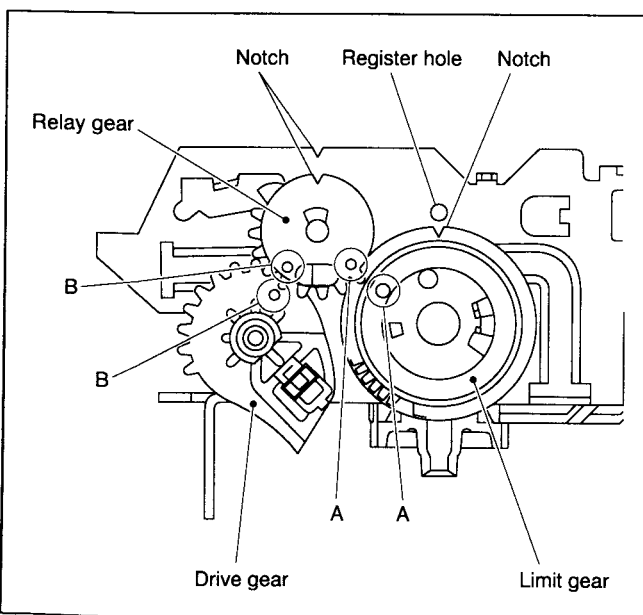


Fig. 2-3-7

2.4 COMPATIBILITY ADJUSTMENT

Notes: • *Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the audio control head, drum assembly or any part of the tape transport system.*

- *To avoid any damage to the alignment tape while performing the compatibility adjustment, get a separate cassette tape (for recording and play back) ready to be used for checking the initial tape running behavior.*

2.4.1 Checking/Adjustment of FM Waveform Linearity

- (1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.
- (2) Playing the alignment tape MHPE, observe the FM waveform.
- (3) Press the channel buttons (+) and (-) buttons simultaneously during playback to enter the manual tracking mode (This also brings tracking to the center.)
- (4) Make sure that there is no significant level drop of the FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (Fig.2-4-1)
- (5) Slightly loosen the set screw under the pole base assembly with a 1.25 mm hexagonal wrench (Take care not to loosen too much). (Fig.2-4-2)
- (6) Reduce the FM waveform while pressing the channel buttons (+, -) during playback. If a drop in level is found on the left side as shown in Fig.2-4-3, turn the guide roller of the pole base assembly (supply side) with the roller driver (PTU94002) to make the FM waveform linear. If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the guide roller to make it linear. (Fig.2-4-3)
- (7) Then play MHPE-L and make sure that the FM waveform varies in parallel and linearly with the tracking operation. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).
- (8) After adjustment, tighten the set screw under the pole base assembly. (Take care not to tighten too much)
- (9) After tightening the set screw, play the alignment tape MHPE and MHPE-L again to make sure that the FM waveform has correct variation.

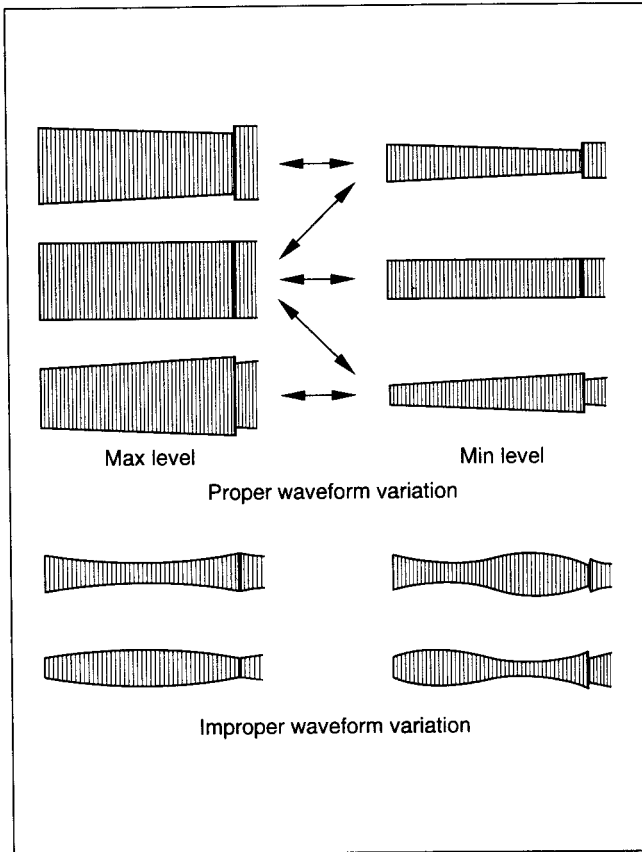


Fig. 2-4-1

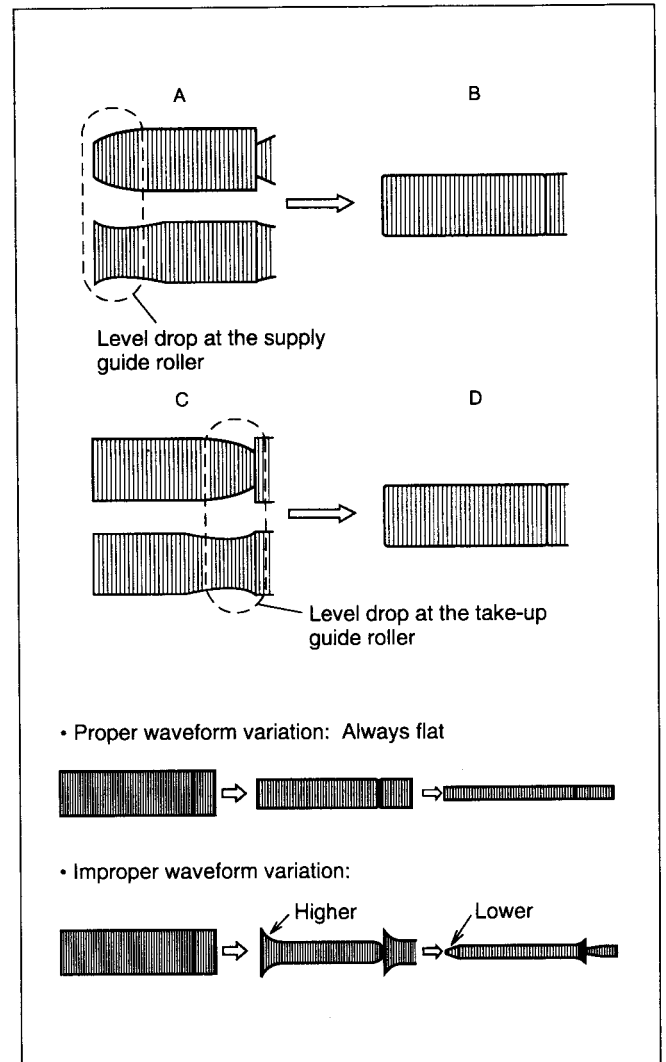


Fig. 2-4-3

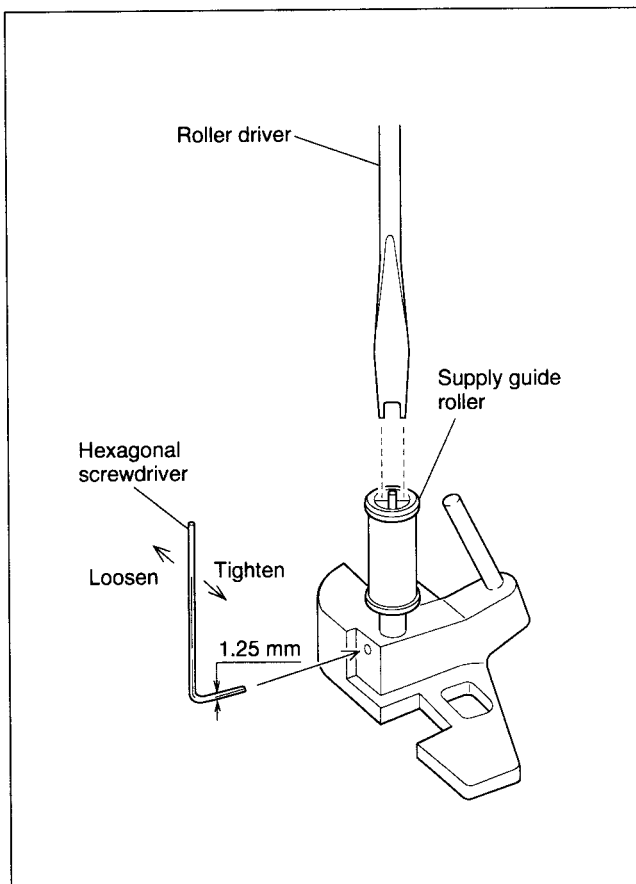


Fig. 2-4-2

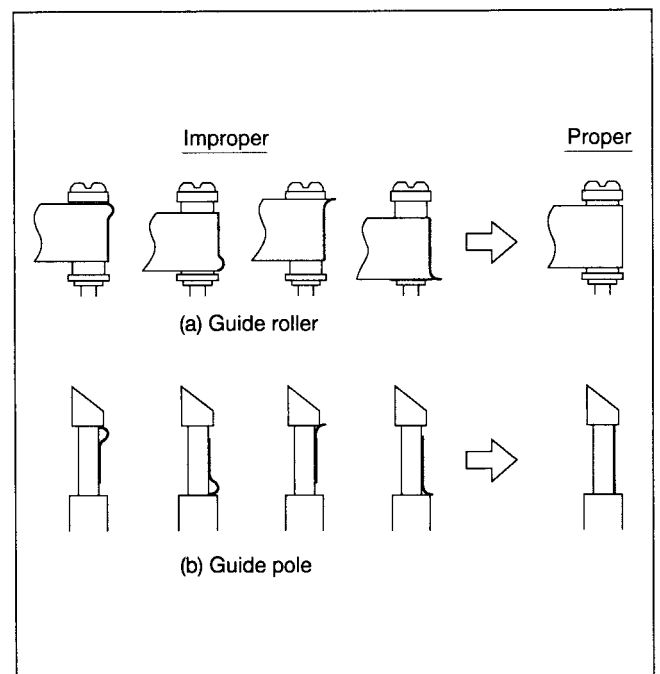


Fig. 2-4-4

2.4.2 Checking/Adjustment of the Height and Tilt of the Audio Control Head

Note: Set a temporary level of the height of the A/C head in advance to make the adjustment easier. (See Fig.2-2-14)

- (1) Connect CH-1 of the oscilloscope to AUDIO OUT and CH-2 to TP4001 (CTL P) of the main board and observe the waveforms on both channels in the ALT mode.
- (2) Play the alignment tape MHPE and adjust it by turning screws (1), (2) and (3) little by little until the waveform of both the audio output signal and the control pulse reach maximum. Screw (1) and screw (3) are for adjustment of tilt and screw (2) for azimuth.

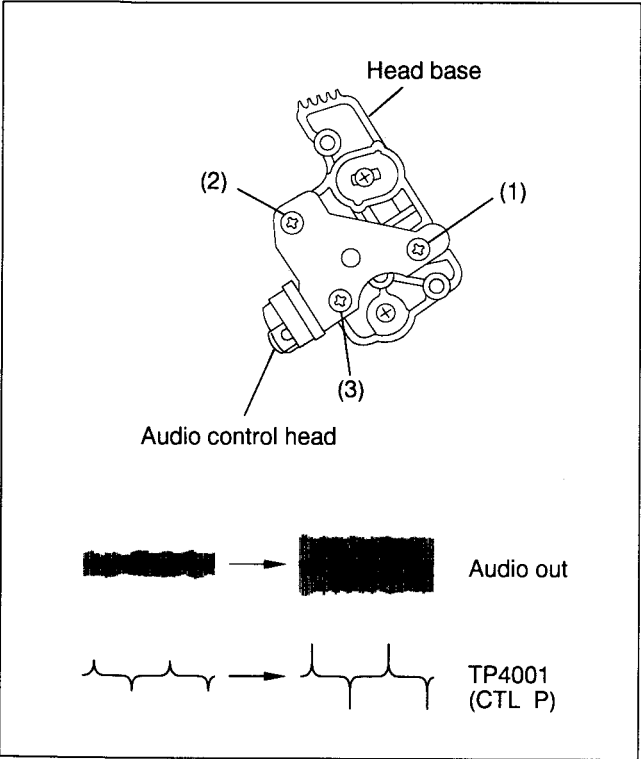


Fig. 2-4-5

2.4.3 Checking/Adjustment of the Audio Control Head Phase (X-Value)

- (1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.
- (2) Play the alignment tape MHPE and observe the FM waveforms.
- (3) Press the channel buttons (+) and (-) buttons simultaneously during playback to enter the manual tracking mode (This also brings tracking to the center.)
- (4) Loosen screws (4) and (5) so that the A/C head position bit (PTU94010) is set as indicated in Fig.2-4-6.
- (5) Turn the A/C head position and first move the audio control head fully up to the capstan head. Then gradually return the audio control head toward the drum and stop it where the FM waveform reaches its maximum for the first time. Then tighten screw (4) temporarily.

- (6) Then play the alignment tape MHPE-L.
- (7) Press the channel buttons (+) and (-) buttons simultaneously during playback to enter the manual tracking mode (This also brings the tracking to the center.)
- (8) Perform the tracking operation and make sure that the FM waveform is at its maximum.
- (9) If it is not at maximum, loosen the temporarily tightened screw (4) and turn the A/C head position bit to bring the audio control head to a position, around where the waveform reaches its maximum for the first time. Then tighten screws (4) and (5).

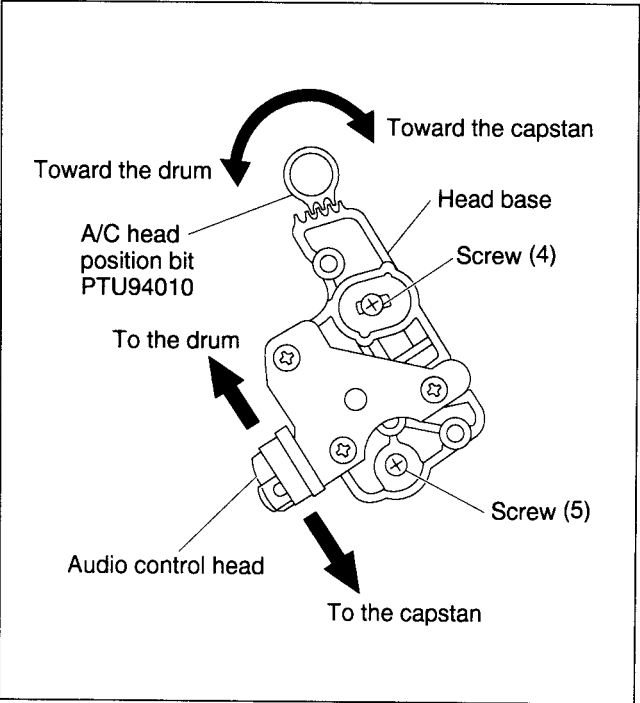


Fig. 2-4-6

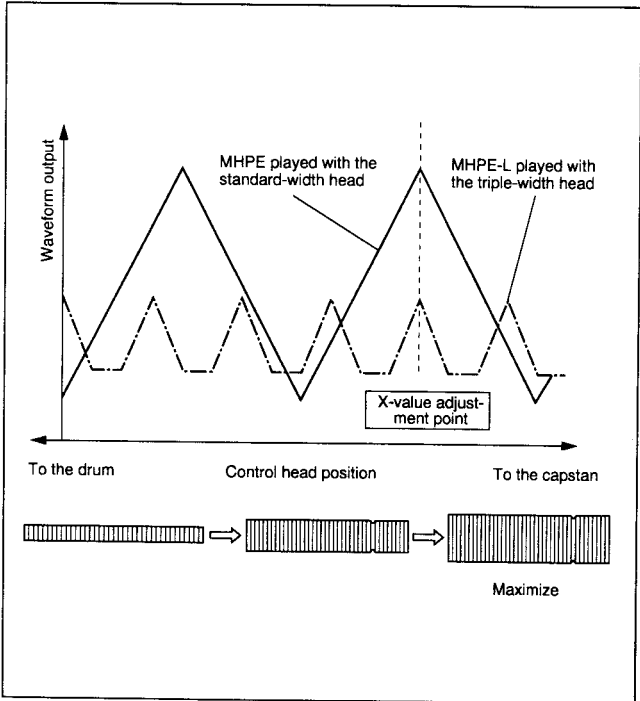


Fig. 2-4-7

2.4.4 LP mode Auto Tracking Preset

Note: Set the remote control cable of the video recorder to A mode.

(The unit set in B mode does not accept the remote control cable of the presetting unit.)

- (1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.
- (2) Playing the alignment tape MHPE and observing the FM waveform, make sure that the auto tracking operation is complete.
- (3) Press the button "D" of the presetting unit twice.
- (4) Make sure that the MHPE-L is not ejected.
- (5) If ejected, again perform the phase (X-value) adjustment of the audio control head.

2.4.5 Checking/Adjustment of the Tension Pole

- (1) Check the back tension cassette gauge (PUJ48076-2) to make sure that the indicator points to 29 - 46 g-cm.
- (2) If the indicated value is outside this range, carry out the following adjustment steps.
 - 1) Select the mechanism servicing mode. (See 1.5 MECHANISM SERVICE MODE)
 - 2) While in the Play mode, turn the adjustment pin with a straight-slot screwdriver while taking care not to touch the 2.5 mm dia. pole. (See Fig.2-4-8).

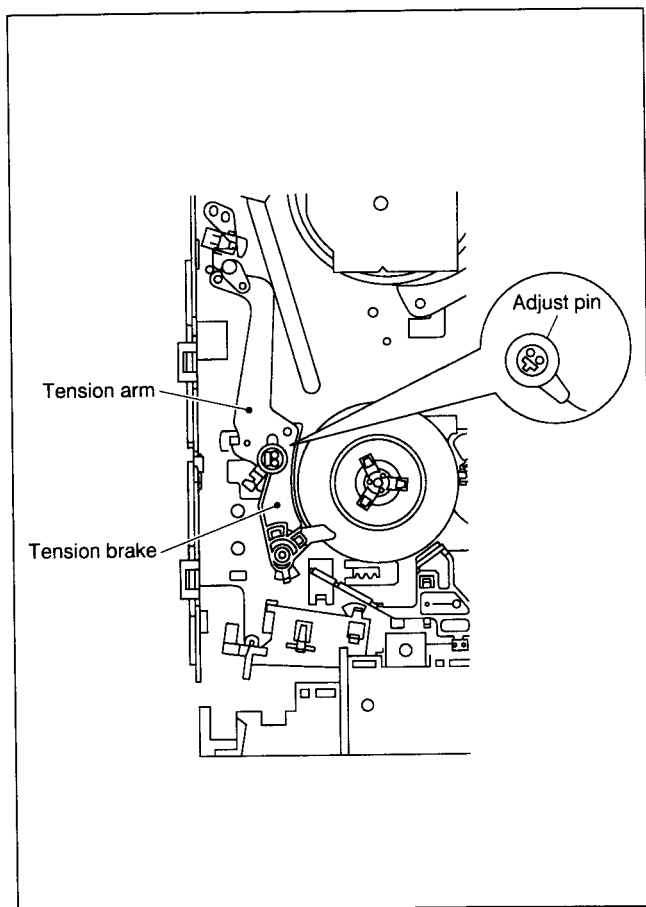


Fig. 2-4-8

2.4.6 Adjustment of the Tension Stud

- (1) Adjust so that the left side of the tension stud is on the extension of the notch line of the main deck as indicated in Fig.2-4-9.

Note: Adjustment is not usually necessary for the tension stud. Perform this adjustment only when it is out of position.

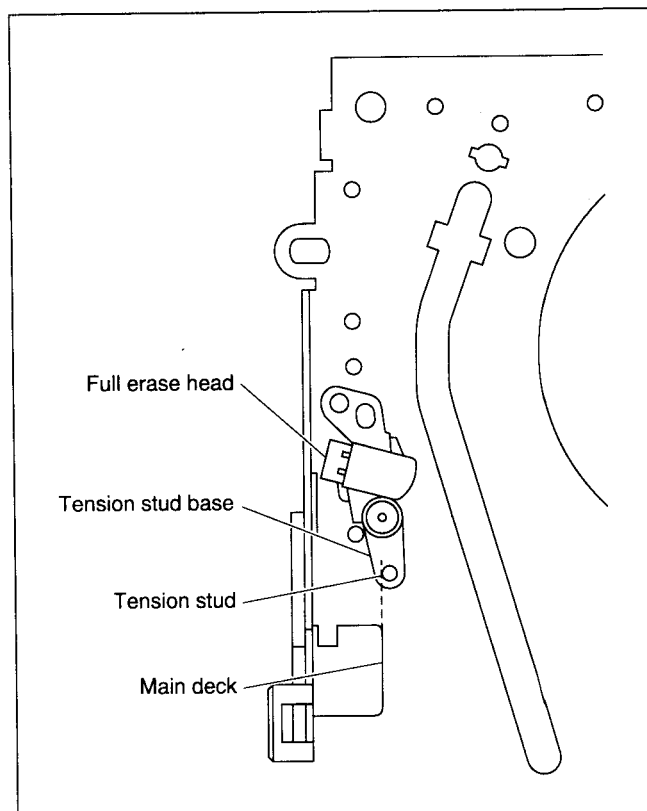


Fig. 2-4-9

2.4.7 Main Brake Torque Adjustment

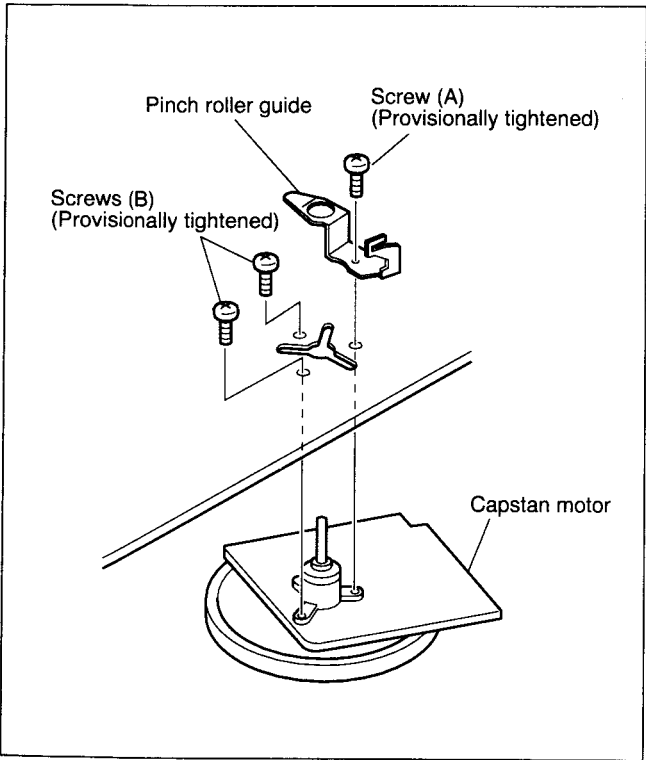
Note: Adjustment of the main brake torque is required after the adjustment pin has been removed or the main brake or the reel base on the supply or take-up side have been replaced, removed or attached.

- (1) Rotate the pulley of the loading motor by hand to align the mark ▼ on the loading arm gear shaft with the ST marking on the control plate (i.e. set to the STOP mode position).
- (2) Insert a torque gauge (PUJ48075-2) into the reel base on the side to be played, hold the torque gauge lightly, rotate it clockwise when measuring the supply side torque or counterclockwise when measuring the take-up side torque, and read the value indicated at the moment the reel base starts to slip.
- (3) Make sure that the main brake torque values on the supply and take-up sides are both between $39.2 - 78.4 \times 10^{-3} \text{ N-m}$ (400 - 800 gf-cm). If the value is outside the specified range, adjust to the specified value by rotating the adjustment pin.
If an adjustment by using the adjustment pin is not possible, replace the main brake.

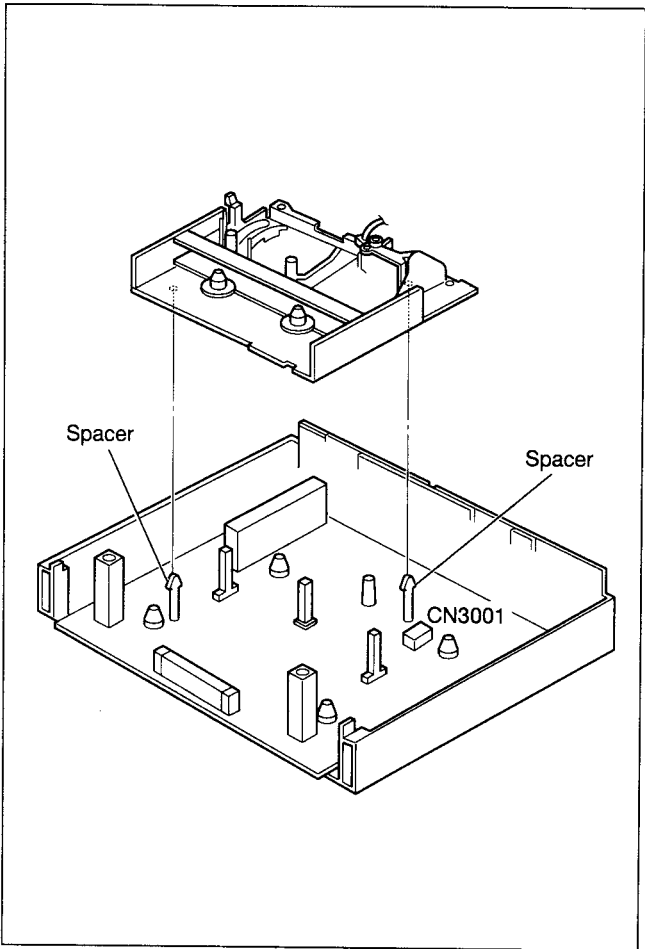
How to Mount the Capstan Motor (Centering the Mounting Position)

When the capstan motor has once been removed and then reinstalled out of the initial correct position in the rotational direction, the capstan motor current may be unstable during operation in high or low temperatures. This may result in greater Wow & Flutter and occasionally in power break-down because of current over - load. Install the capstan motor while following the procedure given below.
(The capstan motor is centrally located when the unit is shipped from the factory.)

1. Provisionally tighten one screw (A) together the pinch roller guide and the two screws (B) securing the capstan motor.



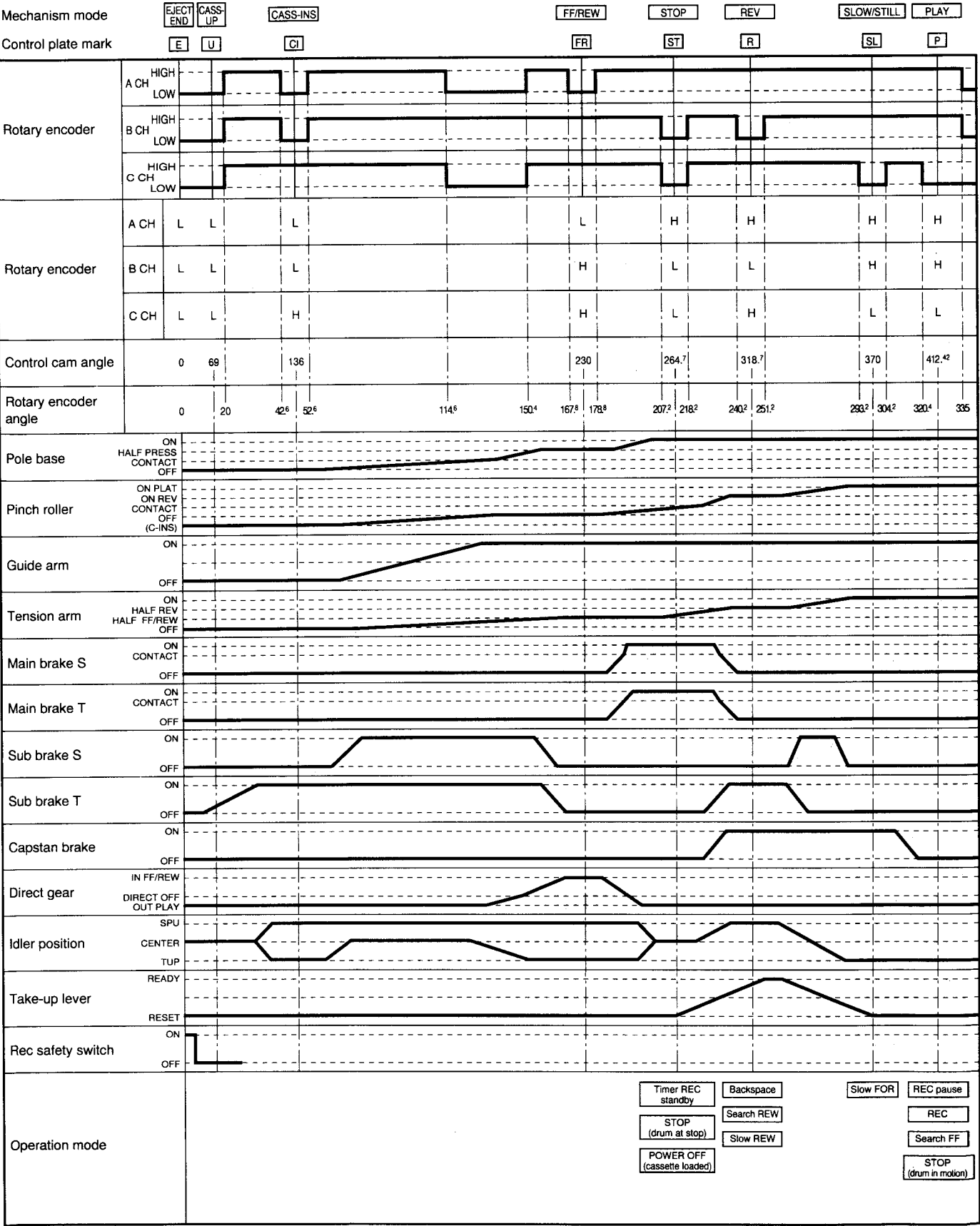
2. Install the mechanism to which the capstan motor is provisionally fastened on the bottom chassis which incorporates the Main board assembly. (No need to tighten the screws for mounting the mechanism)
Make sure that all the connectors for the mechanism and the Main board are correctly installed.



3. Securely tighten the three screws (A), especially making sure that the connector CN3001 of the capstan motor is correctly mounted.

Note: When the capstan motor has been replaced with a new one, perform recording in the LP mode for at least 2 minutes at normal temperatures immediately before starting the FF/REW or SEARCH operations (Aging).

Mechanism Timing Chart



SECTION 3

ELECTRICAL ADJUSTMENT

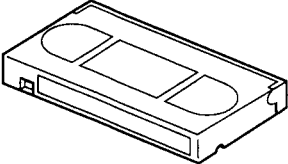
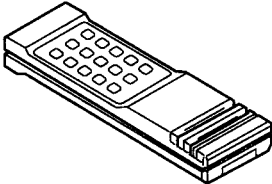
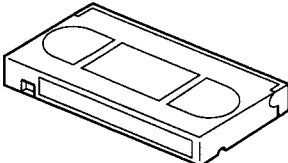
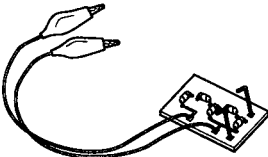
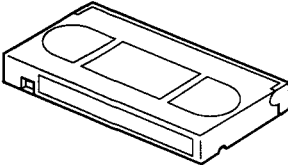
3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

3.1.1 Required test equipment

- ① Colour television or monitor
- ② Oscilloscope: wide-band,dual-trace,triggered delayed sweep
- ③ Frequency counter
- ④ Digital voltmeter
- ⑤ Signal generator: RF/IF sweep/marker
- ⑥ Signal generator: PAL colour bar, staircase
- ⑦ Recording tape
- ⑧ Digit-key remote controller(provided)

3.1.2 Required adjustment tools

Alignment tape (SP, staircase) MHPE	Presetting unit PTU94008
	
Alignment tape (S-VHS, SP/LP, colour bar) MH-2H	LPF PTU93006
	
Alignment tape (SP, staircase) MHP	
	

3.1.3 Colour bar signal,colour bar pattern

● PAL colour bar signal

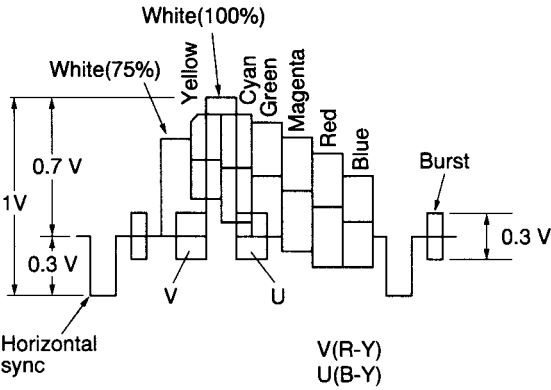


Fig.3-1-1 PAL colour bar signal waveform

● PAL colour bar pattern

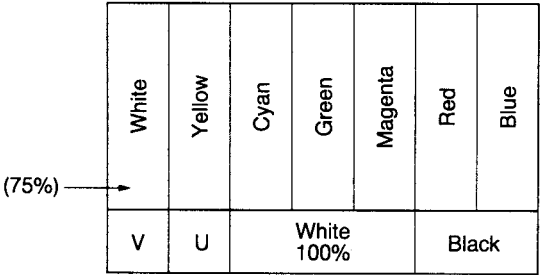


Fig.3-1-2 PAL colour bar pattern

Note:

The system control circuit of this model has an automatic recognition about the ON-OFF control of the **DOCTOR SYSTEM**.

3.2 SERVO CIRCUIT

Notes: • Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.

- Set VCR to the mode A by remote controller.
- Use only buttons "O", depressing other buttons during adjustment may cause adjustment errors.

3.2.1 PB switching point

Signal	• Alignment tape [MHPE], Stairstep • Alignment tape [MHP], Stairstep
Mode	• PB • TBC : OFF
Equipment	• Oscilloscope
Measurement point	• VIDEO OUT TERMINAL
Trigger slope (-)	• TP111(DRUM FF)
Adjustment tool	• Presetting unit [PTU94008]
Specification	• $8.0 \pm 0.5H$ [MHPE] • $7.5 \pm 0.5H$ [MHP]

- (1) Playback the stairstep signal of the alignment tape [MHPE].
- (2) Connect an oscilloscope to VIDEO OUT TERMINAL and TP111 (negative slope), and then observe VIDEO OUT TERMINAL.
- (3) Adjust by pressing "E" or "F" buttons of the presetting unit so that the switching point becomes $8.0 \pm 0.5H$ from V.sync.
- (4) Depress the STOP button.
- (5) Playback the stairstep signal of the alignment tape [MHP].
- (6) Adjust by pressing "E" or "F" buttons of the presetting unit so that the switching point becomes $7.5 \pm 0.5H$ from V.sync.
- (7) Depress the STOP button.

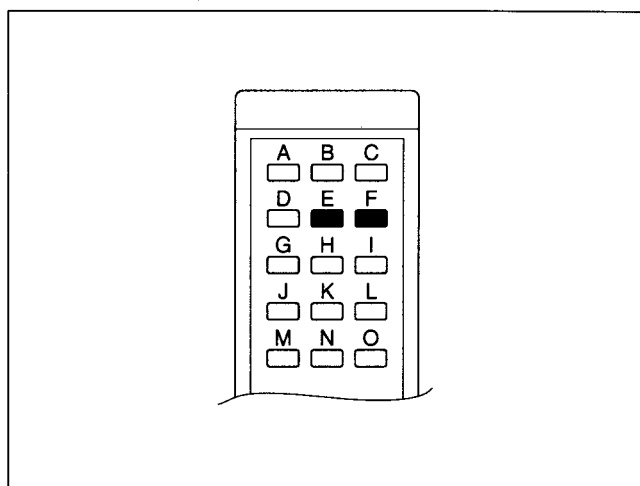


Fig. 3-2-1 Presetting unit

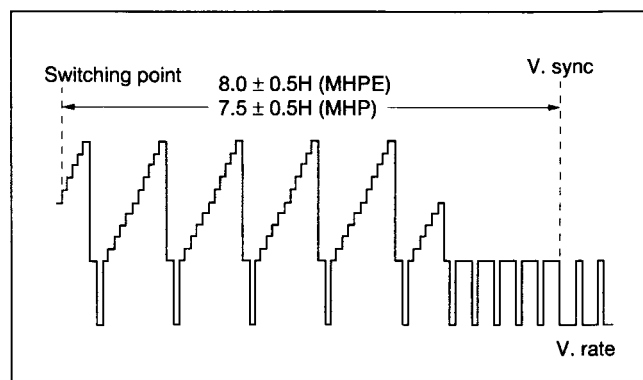


Fig. 3-2-2 PB switching point

3.2.2 Slow tracking preset

Signal	• Tuner or colour bar
Mode	• SP/LP : REC → PB(SLOW) • S-VHS
Equipment	• TV-Monitor
Adjustment tool	• Presetting unit (PTU94008)
Specification	• Minimum noise

Notes: • Set VCR to the mode A by remote controller.
• Use only buttons "B" and "C", depressing other buttons during adjustment may cause adjustment errors.

- (1) Record a colour bar signal in the SP mode.
- (2) Playback recorded signal on the FWD slow mode.
- (3) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing "B" or "C" buttons of the presetting unit.
- (4) Depress the STOP button.
- (5) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
- (6) Repeat steps (3) to (5) in the REV slow mode.
- (7) Repeat steps (2) to (6) in the LP mode.

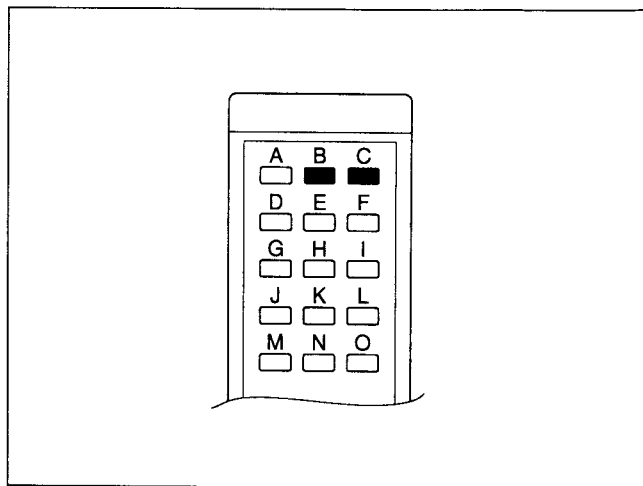


Fig. 3-2-3 Presetting unit

3.2.3 Dynamic drum preset

Signal	• Alignment tape [MHPE-L], Stairstep
Mode	• Automatic tracking OFF
Equipment	• Oscilloscope
Measurement point	• TP106 (PB FM)
Trigger slope (+)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit [PTU94008] • Digit -key remote controller
Specification	• FM waveform flat

Note : Set VCR to the mode A by remote controller.

- (1) Connect an oscilloscope to TP106 and external trigger from TP111 (positive slope).
- (2) Playback the LP stairstep portion of the alignment tape at LP 2 x mode.
- (3) Set the automatic tracking control to the OFF by simultaneously pressing the TV PROG “-” and “+” buttons.
- (4) Adjust for maximum level of the playback FM waveform by depressing TV PROG “-” or “+” buttonson.
- (5) Adjust by pressing “M+D” or “M+E” buttons of the presetting unit for the FM waveform is flat as shown in Fig. 3-2-5.
- (6) Adjust for half level of the playback FM waveform from maximum level by depressing TV PROG “-” or “+” buttons.
- (7) Readjust by pressing “M+D” or “M+E” buttons of the presetting unit for the FM waveform is flat as shown in Fig. 3-2-5.
- (8) Record the colour bar signal by LP mode and play it back in the LP FWD slow mode.
- (9) Repeat steps (4) and (5).
- (10) Depress the STOP button.

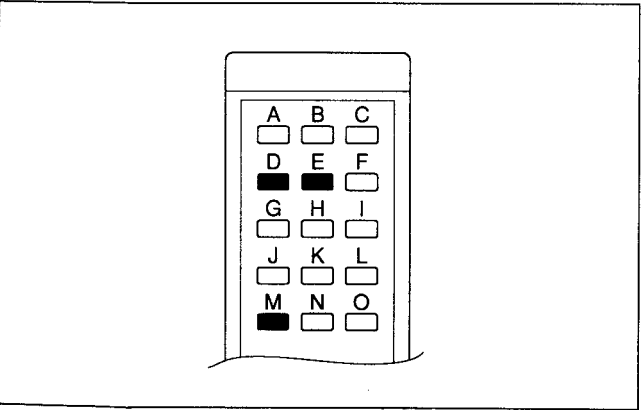


Fig. 3-2-4 Presetting unit

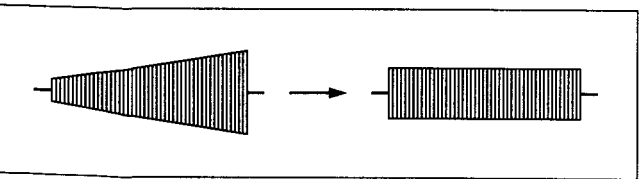


Fig. 3-2-5 PB FM

3.3 VIDEO CIRCUIT

- Notes:**
- Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.
 - VIDEO circuit adjustments are performed by the EVR system by use of the presetting unit and digit-key remote controller.
 - S-INPUT means Y/C separated video signal in the chart.
 - Set VCR to the mode A by remote controller.

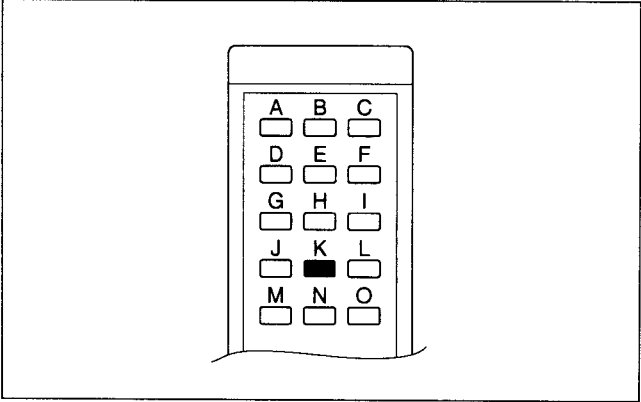


Fig. 3-3-1 Presetting unit

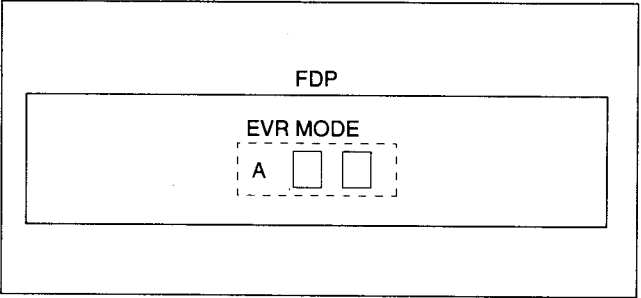


Fig. 3-3-2 EVR mode

3.3.1 Y level

Signal	• Colour bar
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL(75Ω TERMINATION)
Adjustment tool	• Presetting unit • Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03 Vp-p (terminated)

- (1) Connect an oscilloscope to Y OUT TERMINAL.
- (2) Set EVR mode by pressing “K” button of the presetting unit more than 2 seconds.
- (3) Set “A : 11” pressing 1 digit key twice of the remote controller.
- (4) Adjust TV PROG “+” or “-” button for 1.00 ± 0.03 Vp-p (See Fig. 3-3-3).
- (5) Set normal VCR mode by pressing “K” button of the pre-setting unit again so adjustment data is memorized.

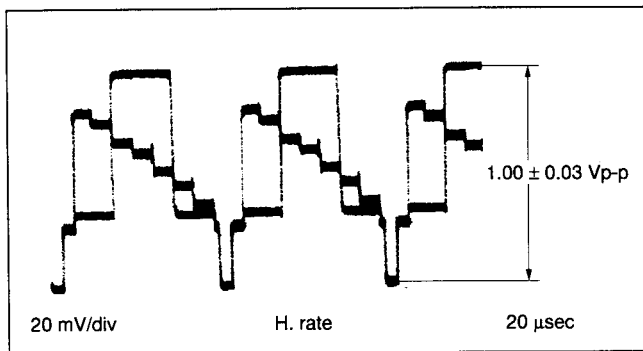


Fig. 3-3-3 EE Y level

3.3.2 SP/LP REC colour level

Signal	• Alignment tape [MH-2H] • Colour bar
Mode	• PB • REC → PB : SP/LP • S-VHS
Equipment	• Oscilloscope
Measurement point	• PB colour out
Trigger slope (-)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit • Digit-key remote controller • LPF fixture (PTU93006)
EVR mode	• A : 2
Specification	• "B" × 150 ± 5% : SP • "B" × 110 ± 5% : LP

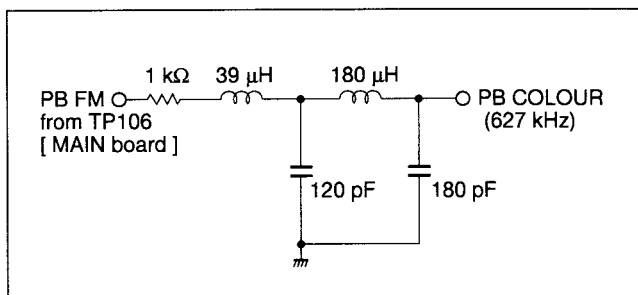


Fig. 3-3-4 LPF

- (1) Connect an oscilloscope to PB COLOUR of a LPF(refer to Fig. 3-3-4) and TP111(negative slope) on the MAIN board.
- (2) Playback the SP colour bar signal of MH-2H alignment tape.
- (3) Set the tracking of the Front panel to the Auto tracking off position by simultaneously pressing the TV PROG "+" and "-" buttons.
- (4) Adjust by pressing the TV PROG "+" or "-" buttons of the Front panel for maximum level of the colour waveform and make a note of the higher colour level "B".
- (5) Press the STOP/EJECT button and eject the MH-2H alignment tape.
- (6) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.

- (7) Set "A : 2" by pressing 2 digit key of the remote controller.
- (8) Before recording, adjust TV PROG "+" or "-" button of the remote controller so that the higher level channel becomes $150 \pm 5\%$: SP ($110 \pm 5\%$: LP) of the note "B" level during playback as shown in Fig. 3-3-5.
- (9) Record a colour bar signal in SP (LP) mode, and playback recorded colour bar signal.
- (10) Set normal VCR mode by pressing "K" button again so adjustment data is memorized.

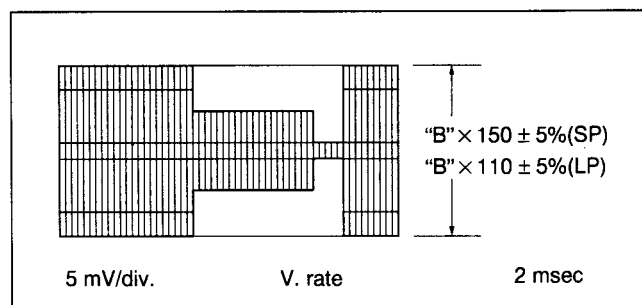


Fig. 3-3-5 REC colour level

3.3.3 PB Y level (S-VHS/VHS)

Signal	• Colour bar • S-VHS/VHS
Mode	• PB : SP
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL(75Ω TERMINATION)
Adjustment tool	• Presetting unit • Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03 Vp-p (terminated)

- (1) Connect an oscilloscope to Y OUT TERMINAL.
- (2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
- (3) Set "A : 11" pressing 1 digit key twice of the remote controller.
- (4) Record a colour bar signal in the S-VHS mode, and playback recorded colour bar signal.
- (5) Adjust TV PROG "+" or "-" button for 1.00 ± 0.03 Vp-p as shown in Fig. 3-3-6.
- (6) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.
- (7) Repeat steps (1) to (6) in the VHS mode.

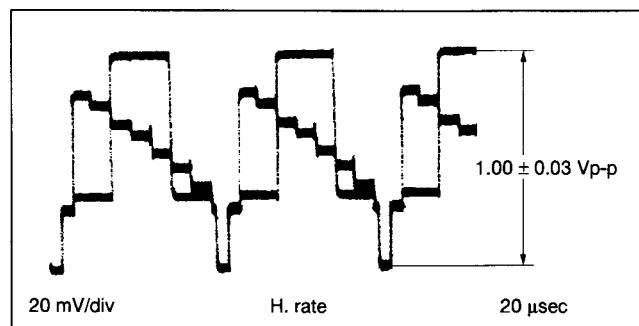


Fig. 3-3-6 PB Y level

3.3.4 S-VHS VIDEO EQ

Signal	• S INPUT • Video sweep
Mode	• REC → PB : SP/LP • S-VHS • EDIT REC : OFF PB : ON
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL(75Ω TERMINATION)
Trigger slope (-)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit • Digit-key remote controller
Specification	• 3.6 ± 0.2 scale : SP • 3.2 ± 0.2 scale : LP

- (1) Connect an oscilloscope to Y OUT TERMINAL and TP111 (negative slope).
- (2) Record a video sweep signal in S-VHS SP mode, then play it back.
- (3) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
- (4) Set "A : 3" by pressing 3 digit key of the remote controller.
- (5) When assuming the 100 KHz sweep signal marker on the bigger channel is four scales on the oscilloscope, adjust TV PROG "+" or "-" button on the front panel or the 10-key remote control so that the 3.00 MHz is set at 3.6 ± 0.2 scale (-2 ± 0.5 dB) while observing Y OUT of the S output (See Fig. 3-3-7).
- (6) The EVR mode is canceled by pressing the "K" button after the adjustment, and the adjusted value is stored.
- (7) Also, it records and plays back the sweep signal in the LP mode.
- (8) Carry out the step (3) and (4).
- (9) When assuming the 100 kHz sweep signal marker on the bigger channel is four scales on the oscilloscope, adjust TV PROG "+" or "-" button on the front panel or the 10-key remote control so that the 3.00 MHz is set at 3.2 ± 0.2 scale (-3 ± 0.5 dB) while observing Y OUT of the S output (See Fig. 3-3-7).

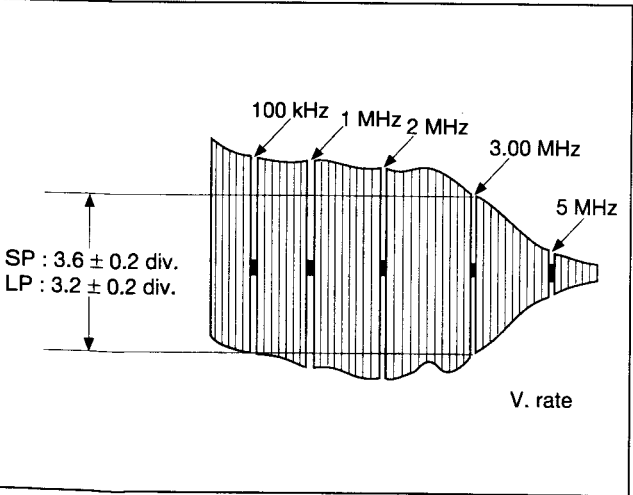


Fig. 3-3-7 S-VHS VIDEO EQ

3.3.5 D/A level

Signal	• Colour bar • S-VHS
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• CN1003-3 pin (Y OUT) [3D S-VHS board]
Adjustment part	• VR1401 (D/A LEVEL) [3D S-VHS board]
Specification (NOTE)	• 2.05 Vp-p (REFERENCE VALUE)

- (1) Connect the oscilloscope to the CN1003-3 pin(Y OUT) on the 3D S-VHS board.
- (2) Confirm the Y level value during external S input.
- (3) Switch the input signal to the external input, then adjust the VR1401 on the 3D S-VHS board so that the Y level value becomes the same level value which was confirmed at the step (2).

Note: • The adjusted value of 2.05 Vp-p is a reference value which should be obtained during external S input. The value should be adjusted to the one which was confirmed at step (2).

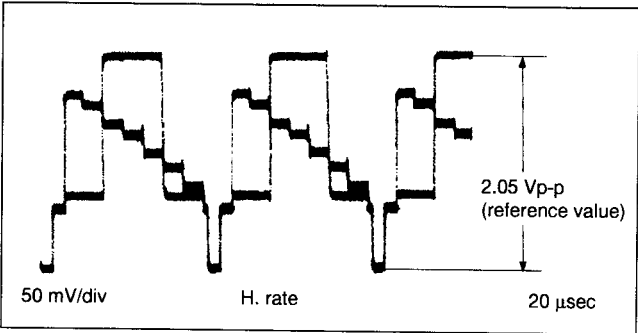


Fig. 3-3-8 D/A LEVEL

3.3.6 Pilot burst level

Signal	• Colour bar • S-VHS
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• TP1001 (FSC PHASE) [3D S-VHS board]
Adjustment part	• VR1002 (P. BURST LEVEL ADJ) [3D S-VHS board]
Specification	• "B" × 110 ± 10%

- (1) Connect the oscilloscope to the TP1001 (FSC PHASE) on the 3D S-VHS board.
- (2) Load an S-VHS tape then set the unit to the S-VHS EE mode.
- (3) Adjust the VR1002 of the 3D S-VHS so that the pilot burst level becomes "B" × 110 ± 10% against the value of the burst level "B".

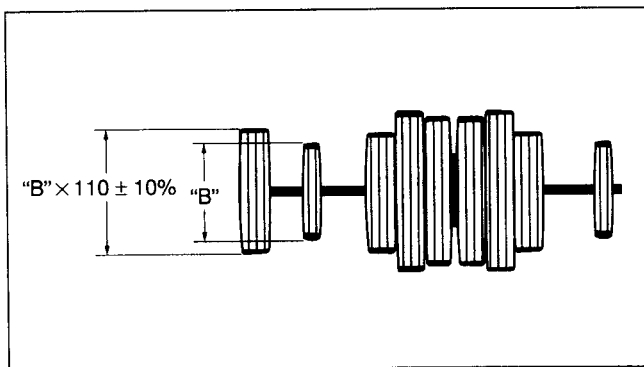


Fig. 3-3-9 PILOT BURST LEVEL

3.3.7 Auto picture

Signal	• Monoscope
Mode	• REC → PB : SP/LP • S-VHS/VHS
Adjustment tool	• Presetting unit [PTU94008]
Specification	• STOP mode

- (1) Record a monoscope signal in the S-VHS/SP mode.
- (2) Playback the recorded signal.
- (3) Press the "L" button of the presetting unit during playback.
- (4) Confirm that VCR will go into the STOP mode.
- (5) Repeat steps (2) to (4) in the LP mode.
- (6) Repeat steps (1) to (5) in the VHS mode.

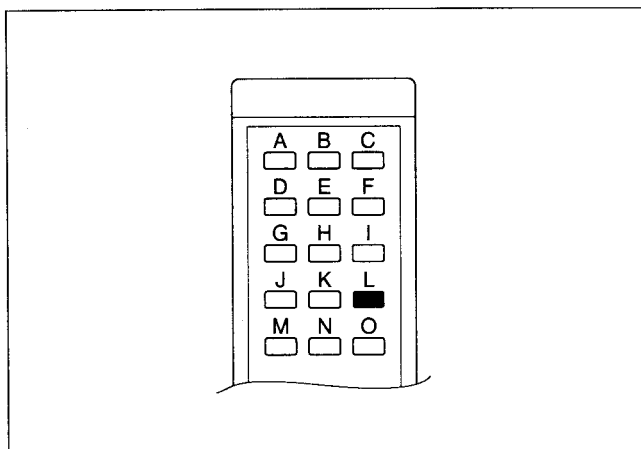


Fig. 3-3-10 Presetting unit

3.4 ON SCREEN CIRCUIT

Note: • Set VCR to the mode A by remote controller.

3.4.1 Character position

Signal	• No signal
Mode	• EE
Equipment	• TV-monitor
Adjustment tool	• Presetting unit [PTU94008] • Digit-key remote controller
Specification	• Character center

- (1) Press the MENU button and display the on screen character.
- (2) Observe TV-monitor and center position of character by pressing "H" button of the presetting unit.

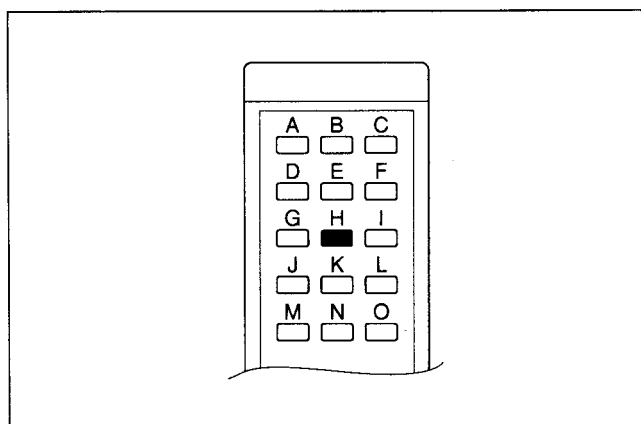


Fig. 3-4-1 Presetting unit

3.5 SYSCON CIRCUIT

Notes: • Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.
• When perform this adjustment, remove the MECHANISM assembly.

3.5.1 Timer clock

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• TL3001 round (SYS. CLK)
Adjustment part	• C3018 (TIMER CLOCK)
Specification	• 1024.008 ± 0.001 Hz [976.5549 ± 0.0010 μsec.]

- Connect the frequency counter to TL3001(SYS.CLK) round and GND.
- Connect the short wire between TL3003(TEST) round and Vcc(5V).
- Short the leads of capacitor C3015 once in order to re-set the IC3001.
- Disconnect the short wire between TL3003 and Vcc then connect it again quickly.
- Adjust the C3018 trimmer capacitor so that the output from TL3001(SYS.CLK) falls within the 1024.008 ± 0.001 Hz (976.5549 ± 0.0010 μ sec.) range.

3.6 AUDIO CIRCUIT

- Notes:**
- Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.
 - This adjustment should be done after the video circuit SP and LP REC colour level are adjusted.
 - GND(Ground) should be taken from the tuner board shield.

3.6.1 REC FM level

Signal	- AUX - VIDEO : Colour bar - AUDIO : No signal
Mode	- REC → PB : LP - S-VHS
Equipment	Oscilloscope
Measurement point	TP2253 (A. PB. FM)
Trigger slope (-)	TP111 (DRUM FF)
Adjustment part	VR2251 (FMA REC FM)
Specification	600 ± 100 mVp-p

- Connect an oscilloscope to TP2253.
- Record a colour bar signal without an audio signal in S-VHS LP mode then playback.
- Adjust VR2251 for 600 mVp-p playback level of higher channel level before recording.
- Confirm that the lower channel level is more than 450 mVp-p.

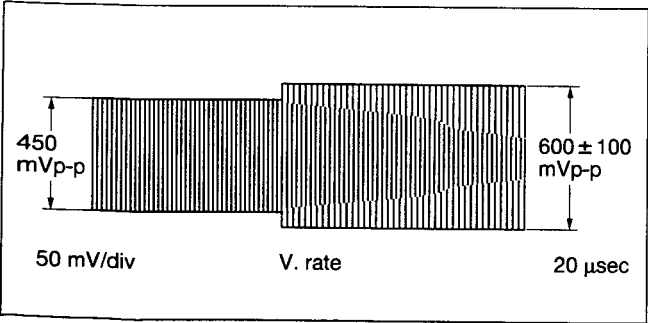


Fig. 3-6-1 Audio REC FM level

3.7 DEMODULATOR CIRCUIT

Note: Unless otherwise specified, all measurement points and adjustment parts are located on the DEMODULATOR BOARD.

3.7.1 Stereo Separation

Signal	Sweep generator output (90 dBμ, 1 kHz)
Mode	EE
Equipment	Oscilloscope
Measurement point	CN6701-pin 8
Adjustment part	VR6701 (SEPARATION 1)
Specification	Minimum level

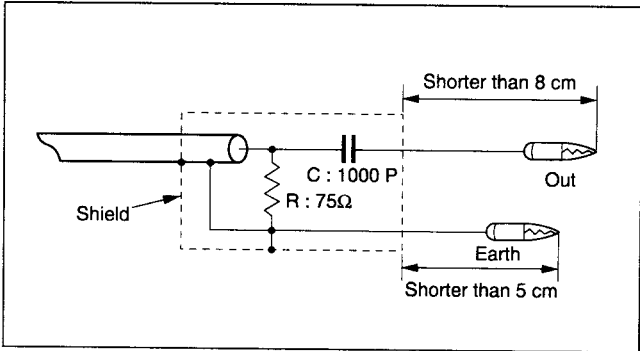


Fig. 3-7-1 Sweeper probe

- Use a sweeper probe as shown in Fig. 3-7-1.
- Supply 1 kHz R-only modulated IF signal to IF terminal of U/V tuner (front end).
- Connect an oscilloscope to CN6701-pin 8.
- Adjust VR6701 for minimum output level.

SECTION 4 CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions

The Components identified by the symbol  are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

- 1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
Chip resistors are 1/16 W.
K: K Ω (1000 Ω), M: M Ω (1000K Ω)
- 2) All capacitance values are in μ F, (P: PF).
- 3) All inductance values are in μ H, (m: mH).
- 4) All diodes are 1SS133, MA165 or IN4148M (refer to parts list).

2. Indications of control voltage

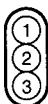
AUX : Active at high

AUX or AUX(L) : Active at low

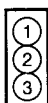
3. Interpreting Connector indications



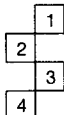
Removable connector



Wire soldered directly on board



Non-removable Board connector



Board to Board



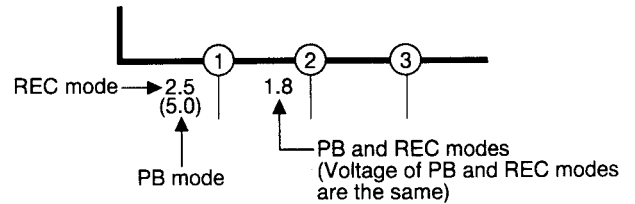
Connected pattern on board
The arrows indicate signal path

4. Voltage measurement

- 1) Video circuits
REC : Colour bar signal in SP mode, normal VHS mode
PB : Alignment tape, colour bar SP mode, normal VHS mode
— : Unmeasurable or unnecessary to measure
- 2) Audio circuits
REC : 1KHz, -8 dBs sine wave signal in SP mode, Normal VHS mode
PB : REC then playback it
- 3) Movie Camera circuits
Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode

4) Indication on schematic diagram

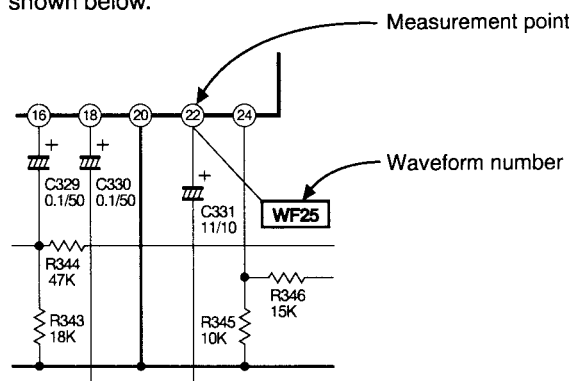
Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



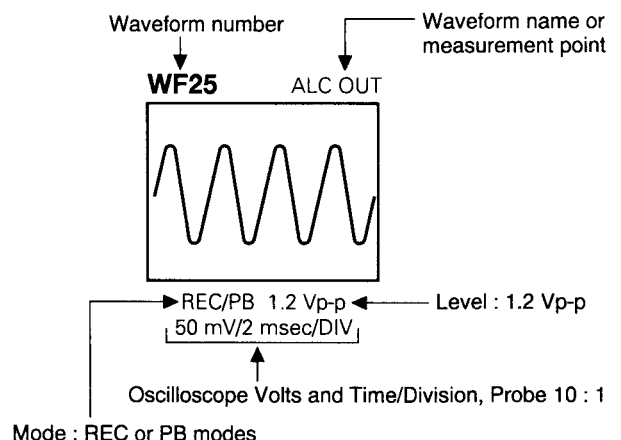
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

- 1) Video circuits
REC : Colour bar signal in SP mode, normal VHS mode
PB : Alignment tape, colour bar SP mode, normal VHS mode
- 2) Audio circuits
REC : 1KHz, -8 dBs sine wave signal in SP mode, normal VHS mode
PB : REC then playback it
- 3) Movie Camera circuits
Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
- 4) Indication on schematic diagram
Waveform indications on the schematic diagram are as shown below.



5) Waveform indications



6. Signal path Symbols

The arrows indicate the signal path as follows.

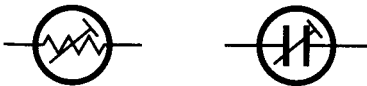
-  Playback signal path
-  Playback and recording signal path
-  Recording signal path (including E-E signal path)
-  Capstan servo path
-  Drum servo path

(Example)

-  R-Y Playback R-Y signal path
-  Y Recording Y signal path

7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

“OPEN” is indicated by the parts not mounted on the circuit board.



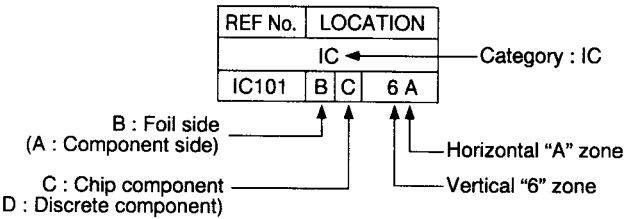
CIRCUIT BOARD NOTES

1. Foil and Component sides

- 1) Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.
- 2) Component side (A side) :
Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

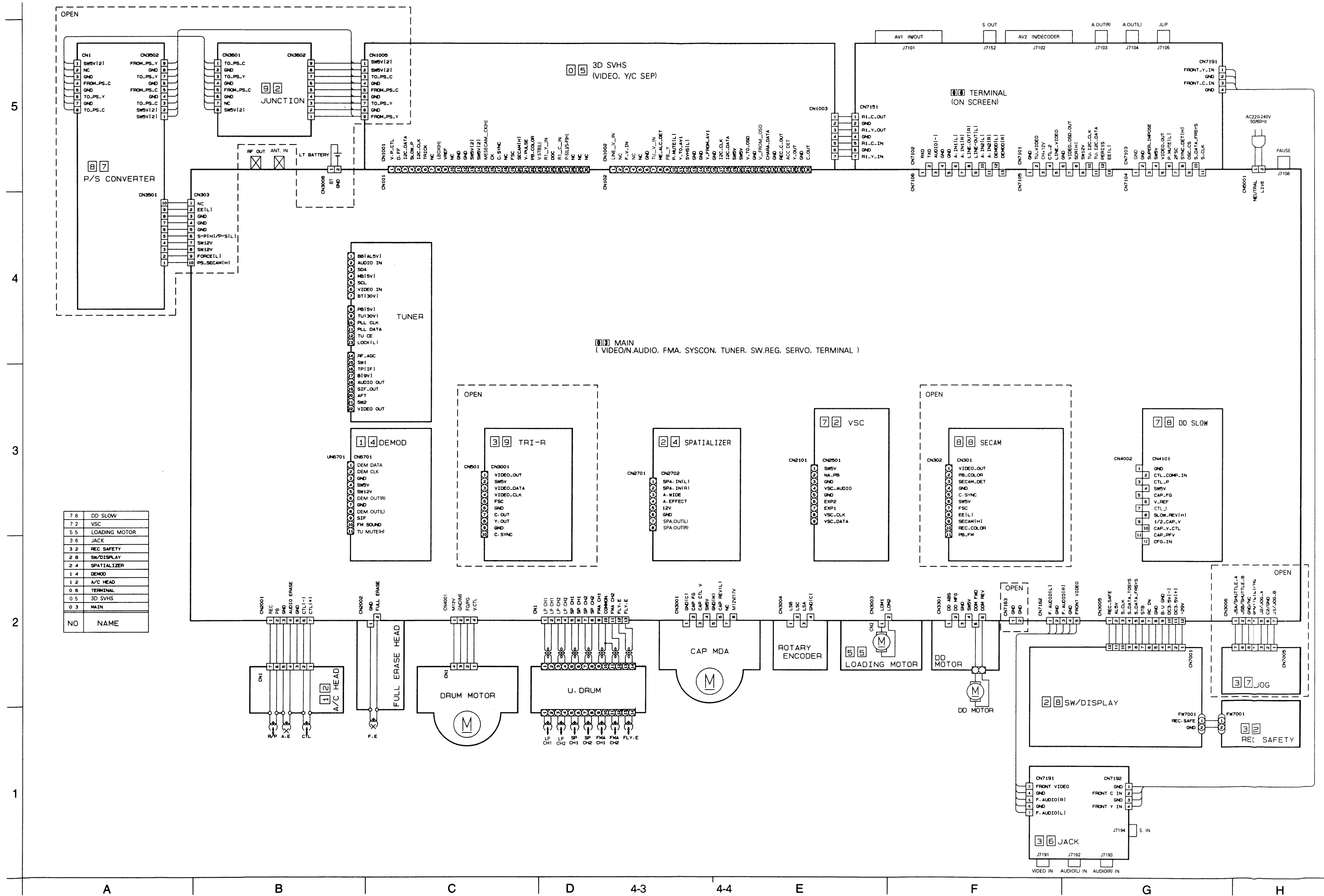
Parts location are indicated by guide scale on the circuit board.



Note:

For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS



5



3

2

1 |

2

3

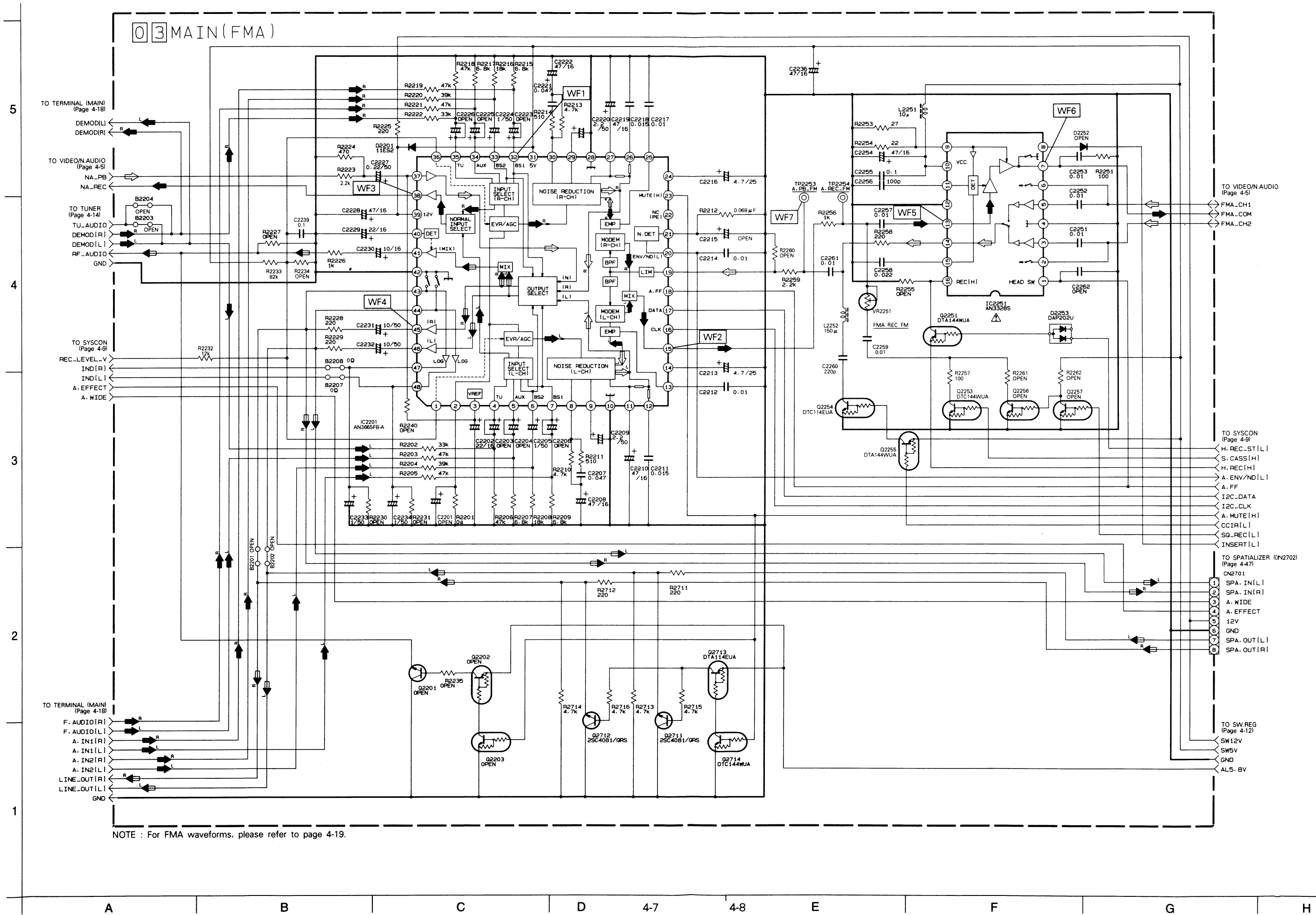
4

5

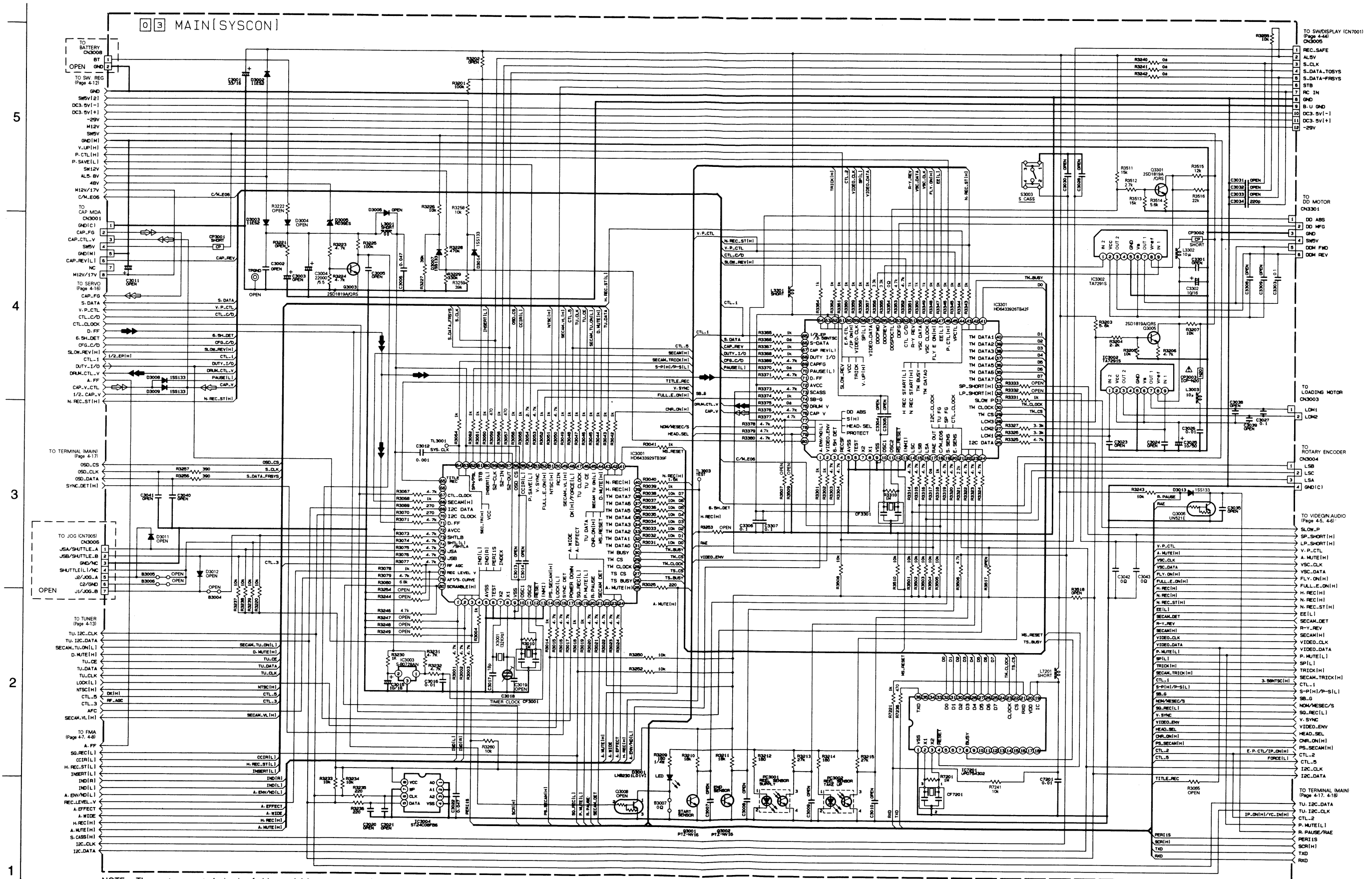
5

1

4.3 FMA SCHEMATIC DIAGRAM



4.4 SYSTEM CONTROL SCHEMATIC DIAGRAM



NOTE : The system control circuit of this model has an automatic recognition about the ON-OFF control of the DOCTOR SYSTEM.

A

B

C

D

4-9

4-10

E

F

G

H

5



3

2

B

C

D

4-11

4-12

E

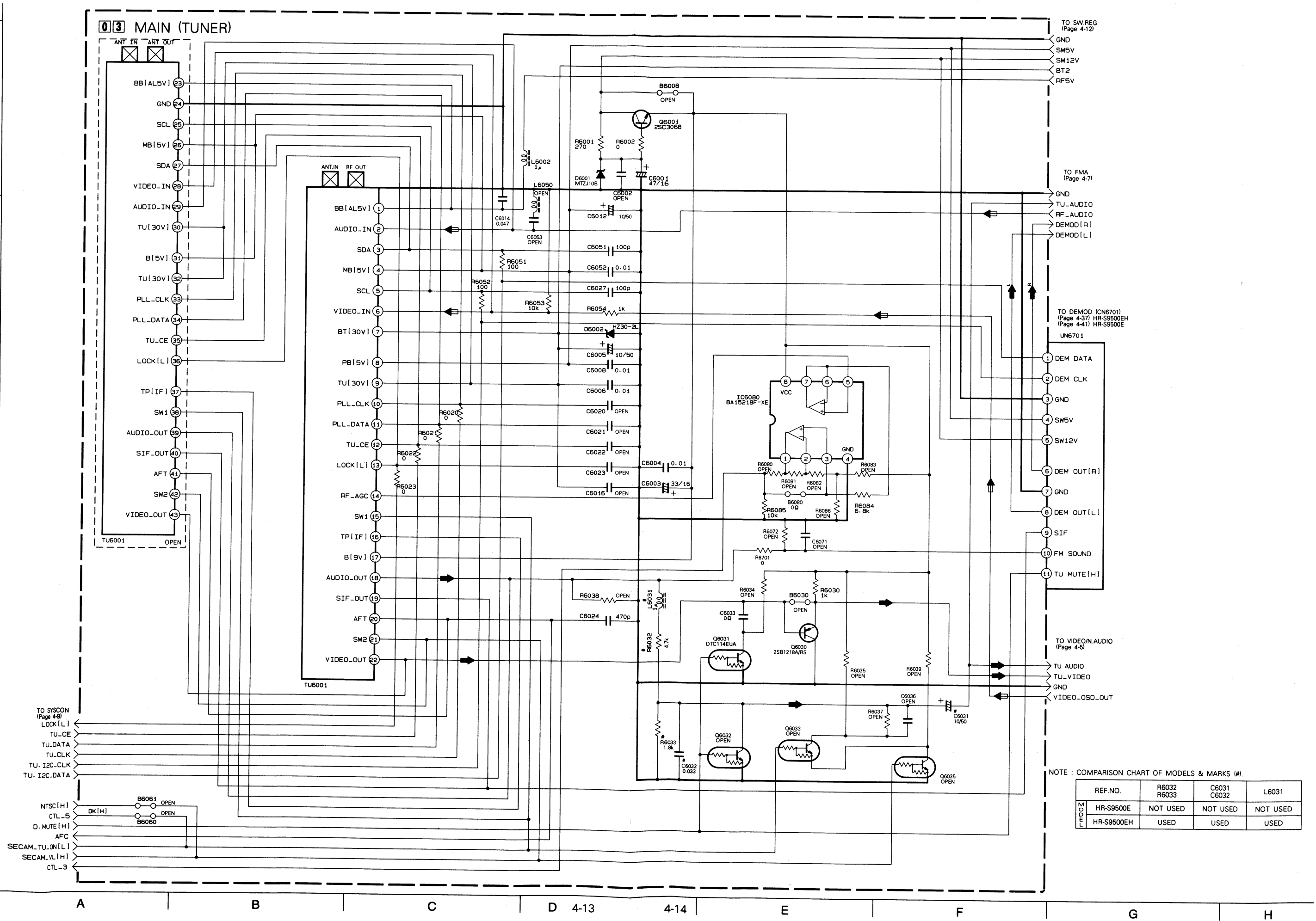
F

G

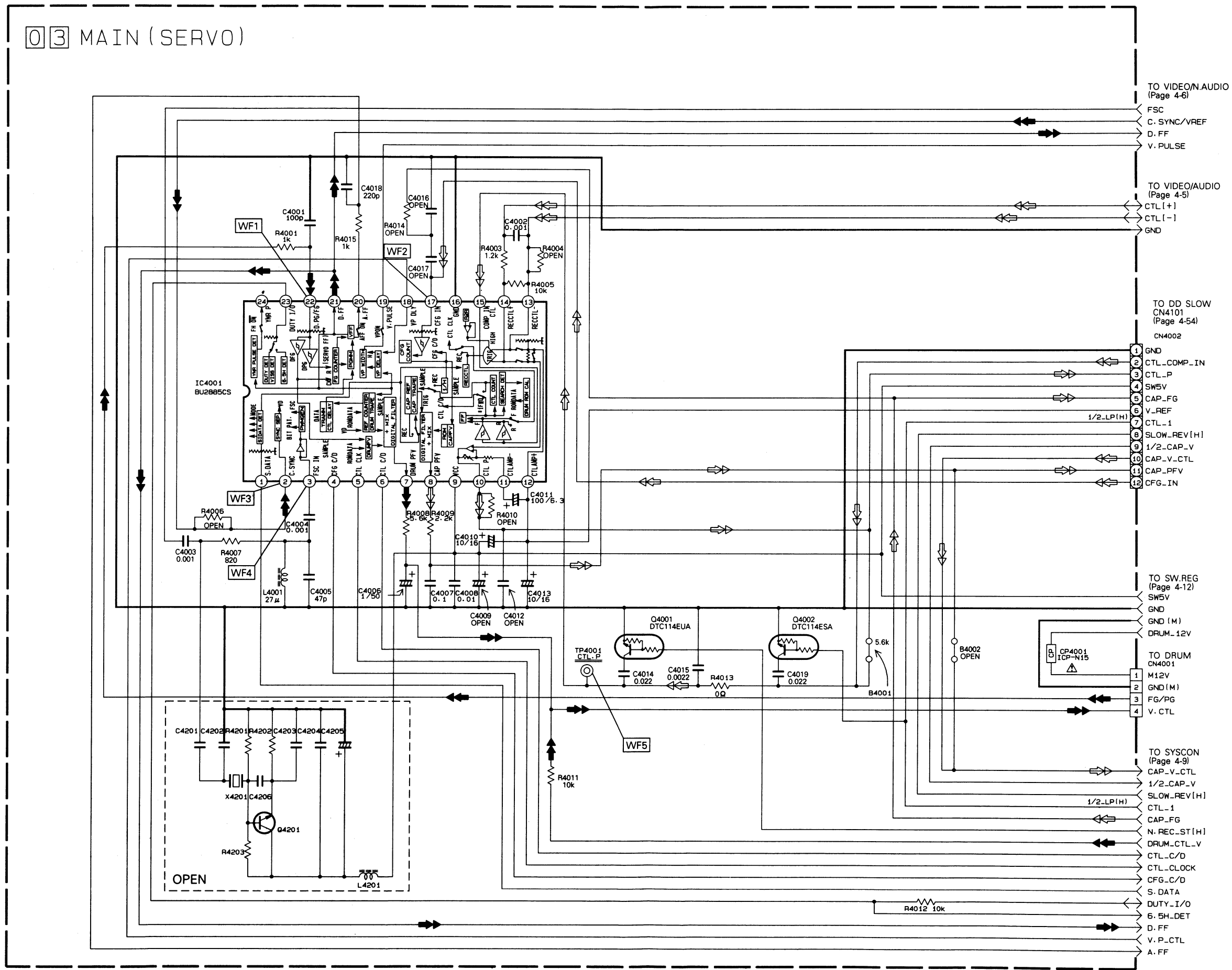
H

1

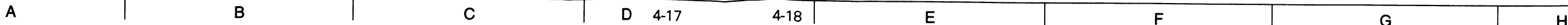
4.6 TUNER SCHEMATIC DIAGRAM



4.7 SERVO SCHEMATIC DIAGRAM

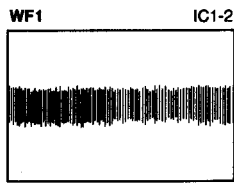


1 2 3 4 5

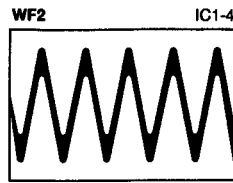


WAVEFORMS

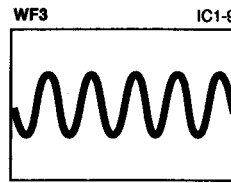
— VIDEO/AUDIO —



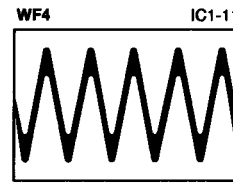
PB 2.5 mVp-p
2 mV/5 msec/DIV



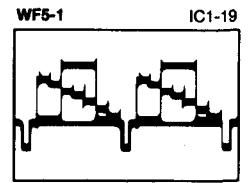
REC 0.82 Vp-p
20 mV/0.5 msec/DIV



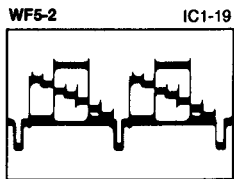
REC 0.11 Vp-p
5 mV/1 msec/DIV



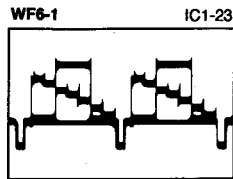
PB 0.78 Vp-p
20 mV/0.5 msec/DIV



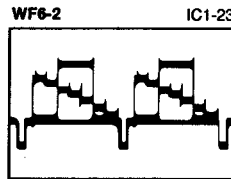
REC 0.5 Vp-p
10 mV/20 µsec/DIV



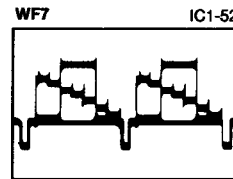
PB 0.56 Vp-p
10 mV/20 µsec/DIV



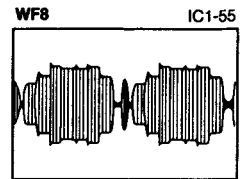
REC 0.48 Vp-p
10 mV/20 µsec/DIV



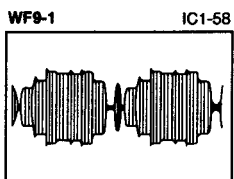
PB 0.56 Vp-p
10 mV/20 µsec/DIV



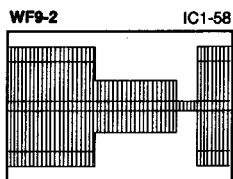
PB 2.2 Vp-p
50 mV/20 µsec/DIV



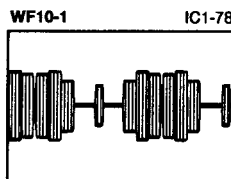
PB 0.62 Vp-p
10 mV/10 µsec/DIV



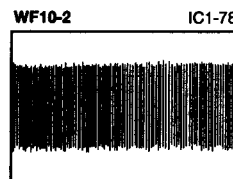
REC 0.42 Vp-p
10 mV/10 µsec/DIV



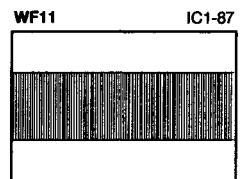
PB 0.42 Vp-p
10 mV/2 msec/DIV



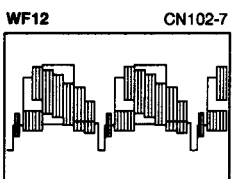
REC 0.62 Vp-p
10 mV/10 µsec/DIV



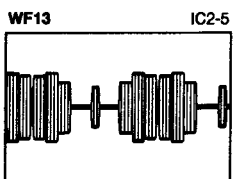
PB 0.22 Vp-p
10 mV/20 µsec/DIV



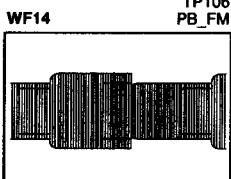
REC 2.7 Vp-p
50 mV/1 msec/DIV



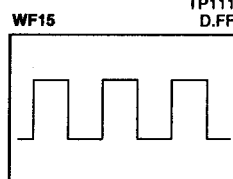
REC 1.02 Vp-p
20 mV/20 µsec/DIV



REC 0.65 Vp-p
10 mV/10 µsec/DIV

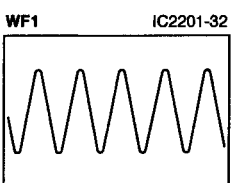


PB 0.25 Vp-p
5 mV/1 msec/DIV

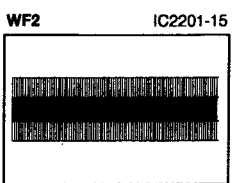


REC/PB 5.1 Vp-p
0.1 V/10 msec/DIV

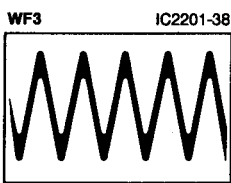
— FMA —



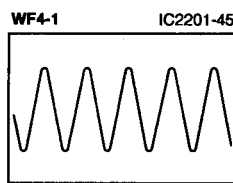
REC 0.1 Vp-p
2 mV/0.5 msec/DIV



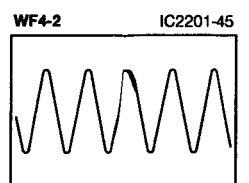
REC 0.26 Vp-p
5 mV/1 msec/DIV



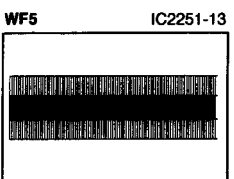
REC 0.11 Vp-p
2 mV/0.5 msec/DIV



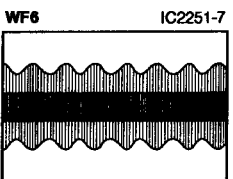
REC 1.04 Vp-p
20 mV/0.5 msec/DIV



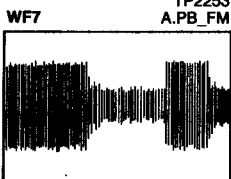
PB 1.04 Vp-p
20 mV/0.5 msec/DIV



REC 0.11 Vp-p
5 mV/1 msec/DIV

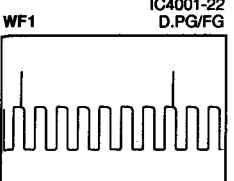


REC 2.1 Vp-p
50 mV/2 msec/DIV

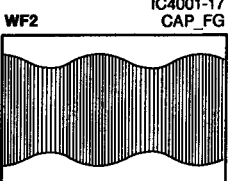


PB 1.0 Vp-p
20 mV/5 msec/DIV

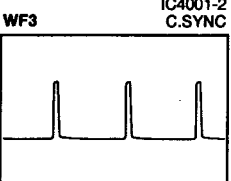
— SERVO —



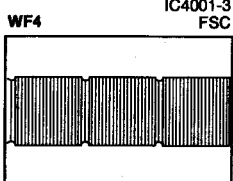
REC/PB 4.0 Vp-p
0.1 V/5 msec/DIV



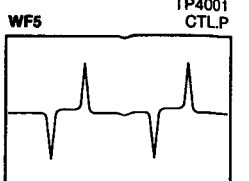
REC/PB 4.1 Vp-p
0.1 V/10 msec/DIV



REC 5.0 Vp-p
0.2 V/20 µsec/DIV



REC/PB 0.32 Vp-p
50 mV/5 msec/DIV

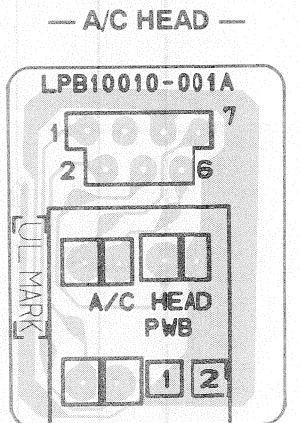
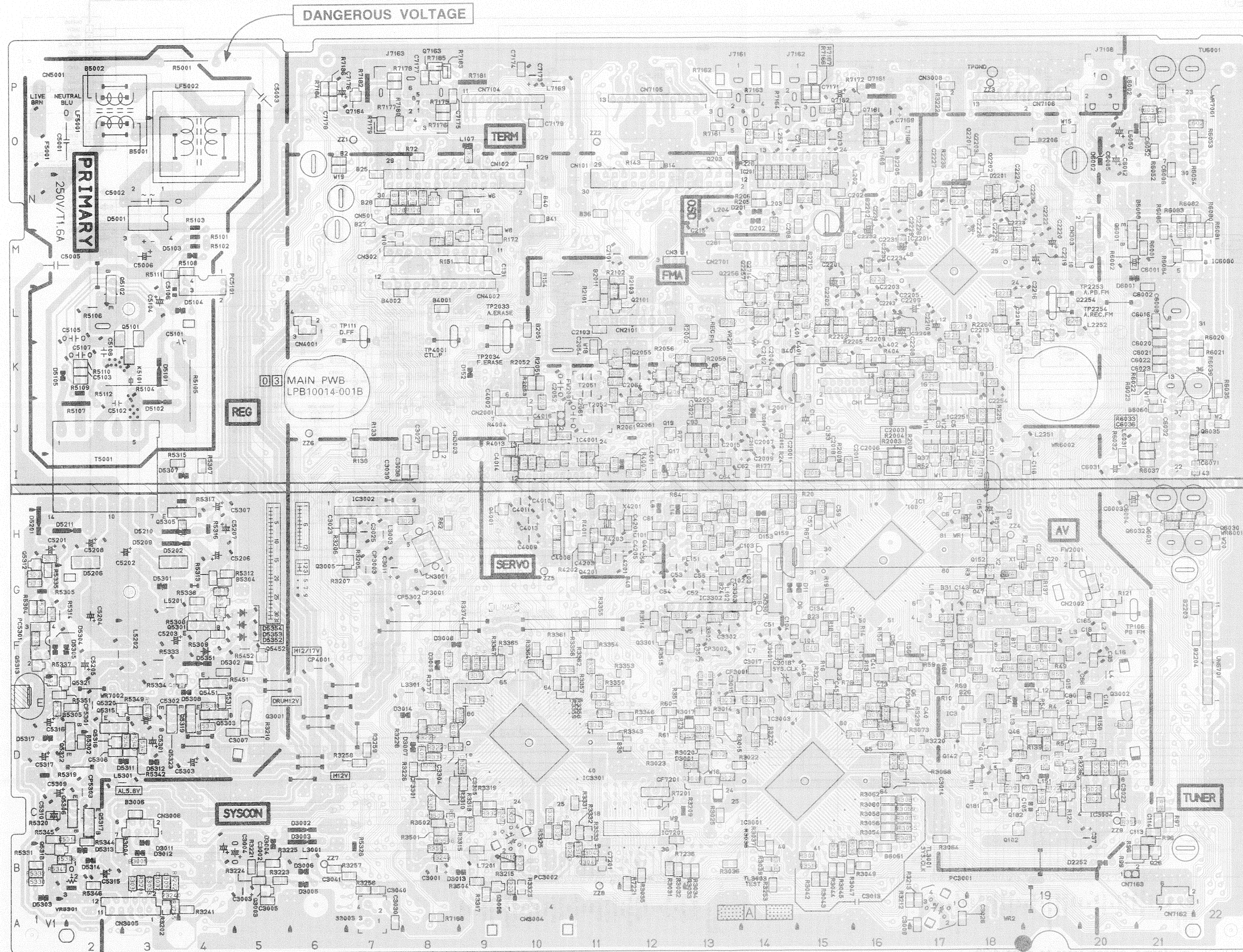


PB 2.8 Vp-p
50 mV/10 µsec/DIV

[illegible]

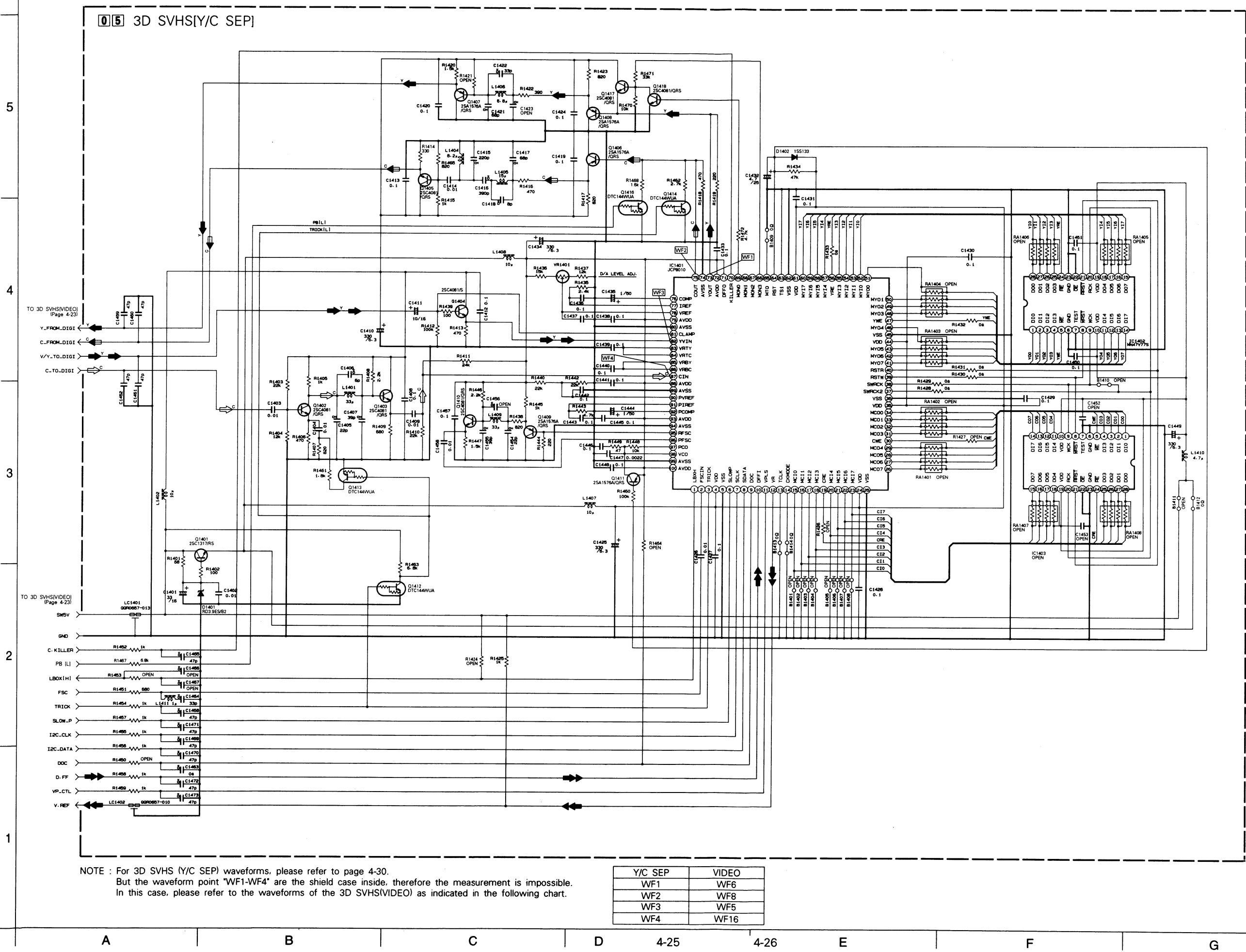
4.9 MAIN AND A/C HEAD CIRCUIT BOARDS

4-10 3D SVHS (VIDEO) SCHEMATIC DIAGRAM



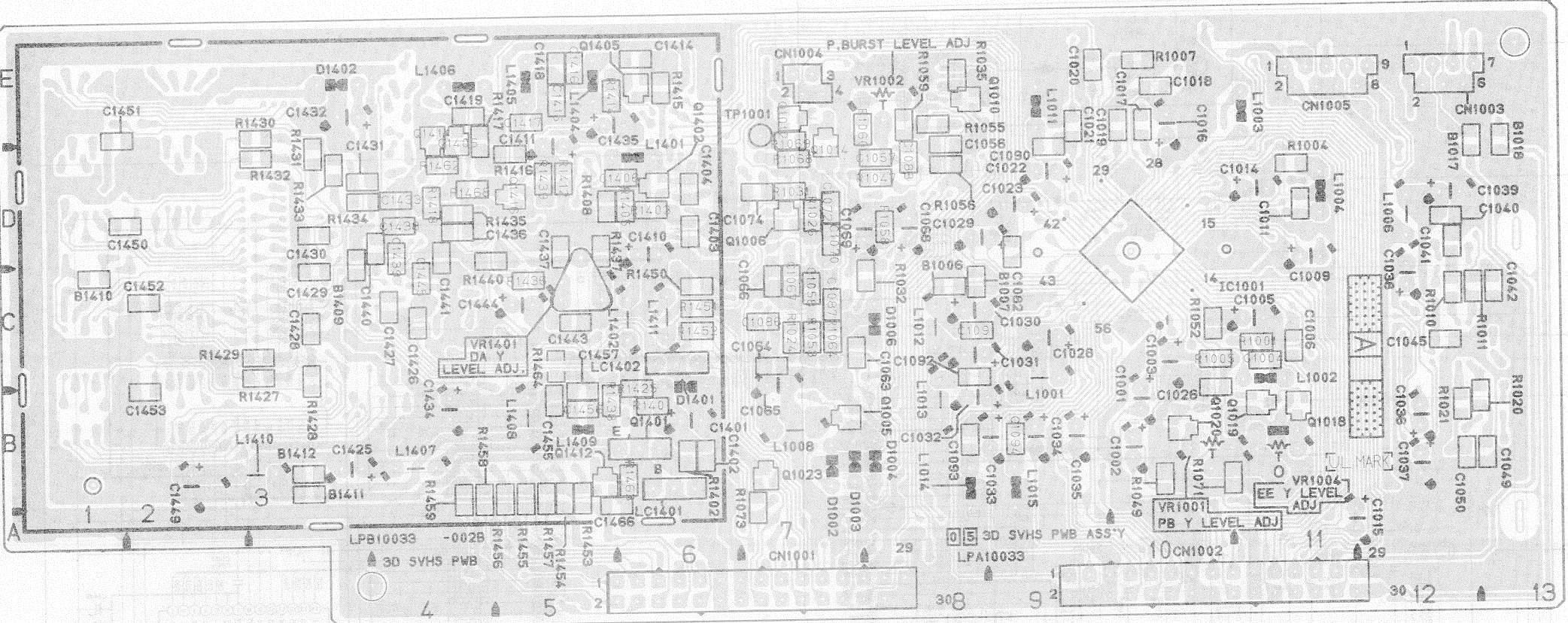
A	B	C	D 4-23	4-24	E	F	G	H
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4.11 3D SVHS (Y/C SEP) SCHEMATIC DIAGRAM

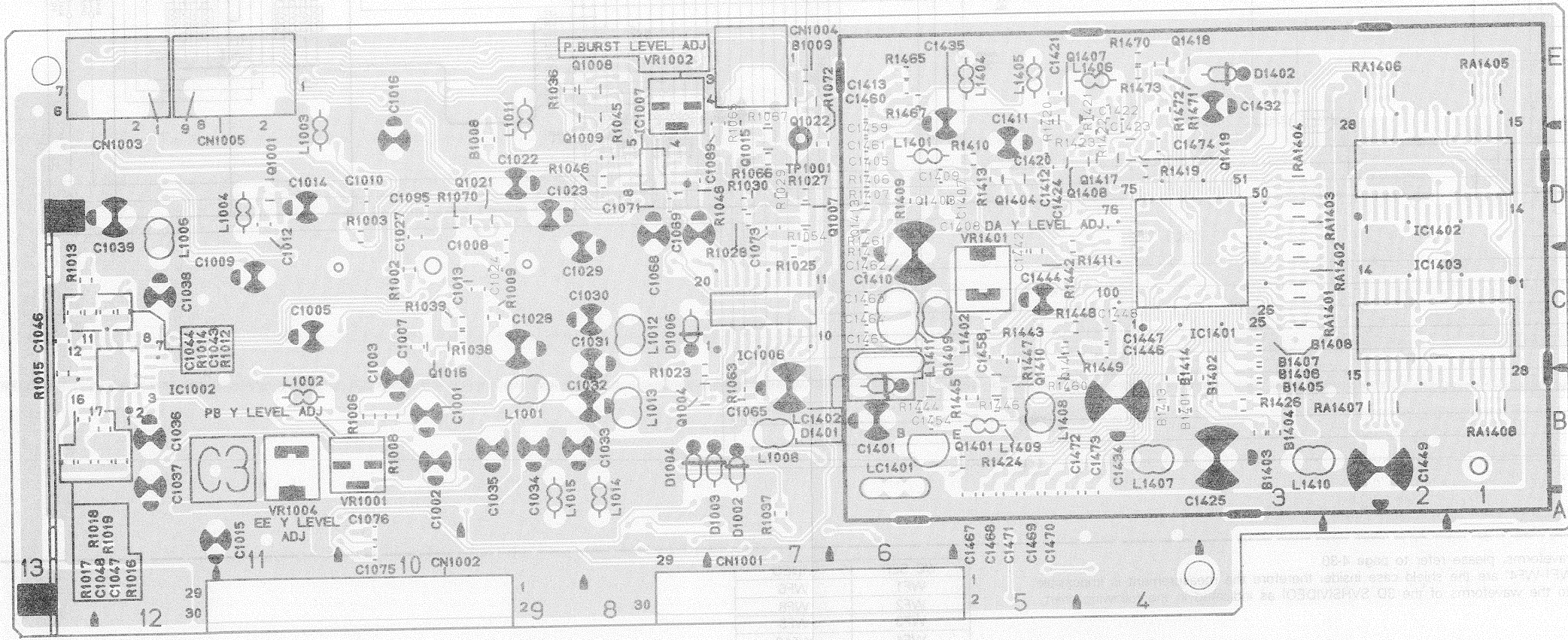


4.12 3D SVHS CIRCUIT BOARD

— FOIL SIDE (B) —



— COMPONENT SIDE (A) —



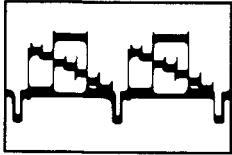
COMPONENT PARTS LOCATION GUIDE <3D SVHS>

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR		C1066	B C 7C	C1435	A D 5E	IC1002	A C 12C	Q1409	A C 6B	R1056	B C 8D	R1443	A C 5C
C1001	A D 10B	C1067	B C 7C	C1436	B C 4D	IC1006	A C 7C	Q1410	A C 5B	R1058	B C 8D	R1444	A C 6B
C1002	A D 10B	C1068	A D 8D	C1437	B C 5D	IC1007	A C 8D	Q1411	A C 5C	R1059	B C 8E	R1445	A C 5B
C1003	A D 10C	C1069	A D 8D	C1438	B C 4D	IC1401	A C 4D	Q1412	B C 5B	R1060	B C 8E	R1446	A C 5B
C1004	B C 11C	C1070	B C 7D	C1439	B C 4D	IC1402	A C 2D	Q1413	A C 6D	R1063	A C 7B	R1447	A C 5C
C1005	A D 11C	C1071	A C 8D	C1440	B C 4D	IC1403	A C 2C	Q1414	B C 4D	R1064	B C 7C	R1448	A C 4C
C1006	B C 11C	C1072	B C 7D	C1441	B C 4D	COIL		Q1416	B C 5D	R1065	A C 7E	R1449	A C 5C
C1007	A C 10C	C1073	A C 7D	C1442	A C 5D	L1001	A D 9B	Q1417	A C 4D	R1066	A C 7D	R1450	B C 6C
C1008	A C 9D	C1074	B C 7D	C1443	B C 5C	L1002	A D 11B	Q1418	A C 4E	R1067	A C 7E	R1451	B C 6C
C1009	A D 11C	C1075	A C 10A	C1444	A D 5C	L1003	A D 11D	Q1419	A C 4D	R1068	B C 7D	R1452	B C 6C
C1010	A C 10D	C1076	A C 10A	C1445	B C 4C	L1004	A D 11D	RESISTOR		R1069	B C 7D	R1453	B C 5B
C1011	B C 11D	C1082	B C 9D	C1446	A C 4C	L1006	A D 12D	R1001	B C 11C	R1070	A C 10D	R1454	B C 5B
C1012	A C 11D	C1086	B C 7C	C1447	A C 4C	L1008	A D 7B	R1002	A C 10C	R1071	B C 11B	R1455	B C 5B
C1013	A C 9C	C1087	B C 7C	C1448	A C 4C	L1011	A D 9E	R1003	A C 10D	R1072	A C 7D	R1456	B C 5B
C1014	A D 11D	C1088	B C 8D	C1449	A D 2B	L1012	A D 8C	R1004	B C 11D	R1073	B C 7A	R1457	B C 5B
C1015	A D 12A	C1089	A C 7E	C1450	B C 2D	L1013	A D 8B	R1005	B C 10C	R1401	B C 6B	R1458	B C 4B
C1016	A D 10D	C1090	B C 9D	C1451	B C 1E	L1014	A D 8A	R1006	A C 10B	R1402	B C 6B	R1459	B C 4B
C1017	B C 10E	C1091	B C 8C	C1452	B C 2C	L1015	A D 9A	R1007	B C 10E	R1403	B C 6D	R1460	A C 5B
C1018	B C 10E	C1092	B C 8B	C1453	B C 2B	L1401	A D 6D	R1008	A C 10B	R1404	A C 6D	R1461	A C 6D
C1019	B C 10E	C1093	B C 8B	C1454	A C 6B	L1402	A D 6C	R1009	A C 9C	R1405	B C 6D	R1462	B C 4D
C1020	B C 9E	C1094	B C 9B	C1455	B C 5B	L1404	A D 5E	R1010	B C 12C	R1406	A C 6D	R1463	B C 6B
C1021	B C 9E	C1095	A C 10D	C1456	B C 5B	L1405	A D 5E	R1011	B C 12C	R1407	A C 6D	R1464	B C 5C
C1022	A D 9D	C1401	A D 6B	C1457	B C 5B	L1406	A D 4E	R1012	A C 12C	R1408	B C 5D	R1465	A C 6E
C1023	A D 9D	C1402	B C 6B	C1458	A C 5C	L1407	A D 4B	R1013	A C 13C	R1409	A C 6D	R1467	A C 6E
C1024	A C 9C	C1403	B C 6D	C1459	A C 6E	L1408	A D 5B	R1014	A C 13C	R1410	A C 5D	R1468	B C 4D
C1026	B C 10B	C1404	B C 6D	C1460	A C 6E	L1409	A D 5B	R1015	A C 13C	R1411	A C 5D	R1470	A C 4E
C1027	A C 10D	C1405	A C 6D	C1461	A C 6D	L1410	A D 3B	R1016	A C 12B	R1412	B C 5D	R1471	A C 4E
C1028	A D 9C	C1406	B C 6D	C1462	A C 6C	L1411	A D 6C	R1017	A C 13B	R1413	A C 5D	R1472	A C 4E
C1029	A D 9D	C1407	A C 5D	C1463	A C 6C	TRANSISTOR		R1018	A C 13B	R1414	B C 6E	R1473	A C 4E
C1030	A D 8C	C1408	A C 5D	C1464	A C 6C	Q1001	A C 11D	R1019	A C 12B	R1415	B C 6E	OTHER	
C1031	A D 9C	C1409	A C 6D	C1465	A C 6C	Q1004	A C 8B	R1020	B C 13B	R1416	B C 5D	LC1401	A D 6B
C1032	A D 9B	C1410	A D 6D	C1466	B C 6A	Q1005	B C 7B	R1021	B C 12B	R1417	B C 4D	LC1402	A D 6C
C1033	A D 9B	C1411	A D 5D	C1467	A C 5B	Q1006	B C 7D	R1023	A C 8C	R1418	B C 4D	RA1401	A C 3C
C1034	A D 9B	C1412	A C 5D	C1468	A C 5B	Q1007	A C 7D	R1024	B C 7C	R1419	A C 4D	RA1402	A C 3C
C1035	A D 9B	C1413	A C 6E	C1469	A C 5B	Q1008	A C 8E	R1025	A C 7D	R1420	A C 5E	RA1403	A C 3D
C1036	A D 12B	C1414	B C 6E	C1470	A C 5B	Q1009	A C 8E	R1026	B C 7D	R1421	A C 4E	RA1404	A C 3D
C1037	A D 12B	C1415	B C 5E	C1471	A C 5B	Q1010	B C 8E	R1027	A C 7D	R1422	A C 4E	RA1405	A C 1E
C1038	A D 12C	C1416	B C 5E	C1472	A C 5B	Q1012	B C 7E	R1028	A C 7D	R1423	A C 4D	RA1406	A C 2E
C1039	A D 12D	C1417	B C 5E	C1473	A C 4B	Q1014	B C 7D	R1029	A C 7D	R1424	A C 5B	RA1407	A C 2B
C1040	B C 12D	C1418	B C 5E	C1474	A C 4D	Q1015	A C 7E	R1030	A C 7D	R1425	B C 6B	RA1408	A C 1B
C1041	B C 12D	C1419	B C 4E	CONNECTOR		Q1016	A C 10C	R1031	B C 7D	R1426	A C 3B	TP1001	A D 7E
C1042	B C 13C	C1420	A C 5D	CN1001	A D 6A	Q1018	B C 11B	R1032	B C 8C	R1427	B C 3C	VR1001	A D 10B
C1043	A C 12C	C1421	A C 5E	CN1002	A D 9A	Q1019	B C 11B	R1035	B C 8E	R1428	B C 3C	VR1002	A D 8E
C1044	A C 13C	C1422	A C 4E	CN1003	A D 12E	Q1020	B C 10B	R1036	A C 9E	R1429	B C 3C	VR1004	A D 11B
C1045	B C 12C	C1423	A C 4E	CN1004	A D 7E	Q1021	A C 9D	R1037	A C 7A	R1430	B C 3E	VR1401	A D 5C
C1046	A C 13C	C1424	A C 5D	CN1005	A D 11E	Q1022	A C 7E	R1038	A C 9C	R1431	B C 3D		
C1047	A C 12B	C1425	A D 3B	DIODE		Q1023	B C 7B	R1039	A C 9C	R1432	B C 3D		
C1048	A C 13B	C1426	B C 4C	D1002	A D 7B	Q1401	A D 6B	R1045	A C 8D	R1433	B C 3D		
C1049	B C 13B	C1427	B C 4C	D1003	A D 7B	Q1402	B C 6D	R1046	A C 8D	R1434	B C 3D		
C1050	B C 12B	C1428	B C 3C	D1004	A D 8B	Q1403	A C 6D	R1047	B C 8D	R1435	B C 4D		
C1056	B C 8D	C1429	B C 3C	D1006	A D 8C	Q1404	A C 5D	R1048	A C 8D	R1436	B C 5C		
C1057	B C 8D	C1430	B C 3D	D1401	A D 6B	Q1405	B C 6E	R1049	B C 10B	R1437	B C 5D		
C1058	B C 7C	C1431	B C 3D	D1402	A D 3E	Q1406	B C 4D	R1052	B C 10C	R1438	B C 5B		
C1063	B C 7C	C1432	A D 3E	IC		Q1407	A C 5E	R1053	B C 7C	R1439	B C 5D		
C1064	B C 7C	C1433	B C 4D	IC1001	B C 10D	Q1408	A C 4D	R1054	A C 7D	R1440	B C 5D		
C1065	A D 7B	C1434	A D 4B					R1055	B C 8E	R1442	A C 5D		

WAVEFORMS

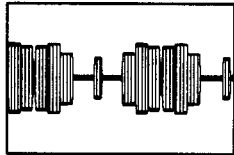
— VIDEO —

WF1 CN1003-7



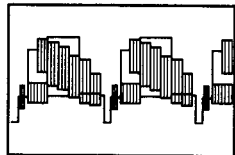
REC 1.0 Vp-p
50 mV/20 μsec/DIV

WF2 CN1003-5



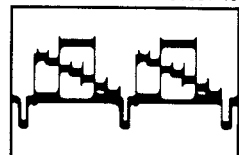
REC 0.68 Vp-p
20 mV/10 μsec/DIV

WF3 IC1001-50



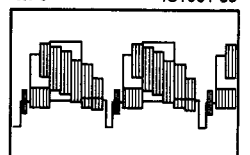
REC 1.0 Vp-p
50 mV/20 μsec/DIV

WF4 IC1001-46



REC 1.0 Vp-p
50 mV/20 μsec/DIV

WF5 IC1001-39



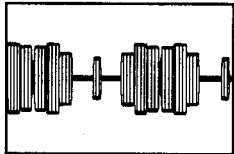
REC 1.8 Vp-p
50 mV/20 μsec/DIV

WF6 IC1001-37



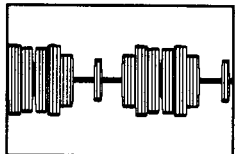
REC 0.8 Vp-p
20 mV/20 μsec/DIV

WF7 IC1001-35



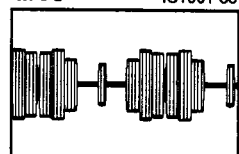
REC 0.7 Vp-p
20 mV/10 μsec/DIV

WF8-1 IC1001-33



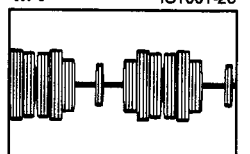
REC 0.34 Vp-p
10 mV/10 μsec/DIV

WF8-2 IC1001-33



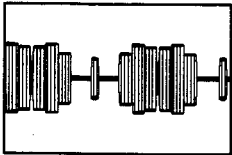
PB 0.42 Vp-p
10 mV/10 μsec/DIV

WF9 IC1001-28



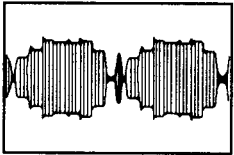
REC 0.68 Vp-p
20 mV/10 μsec/DIV

WF10-1 IC1001-26



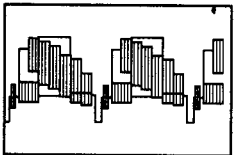
REC 1.4 Vp-p
50 mV/10 μsec/DIV

WF10-2 IC1001-26



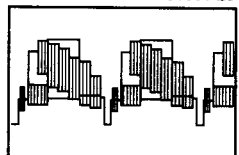
PB 1.2 Vp-p
20 mV/10 μsec/DIV

WF11 IC1001-25



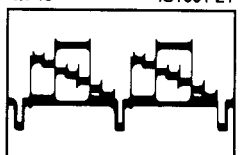
REC/PB 2.1 Vp-p
50 mV/20 μsec/DIV

WF12 IC1001-23



REC/PB 2.1 Vp-p
50 mV/20 μsec/DIV

WF13 IC1001-21



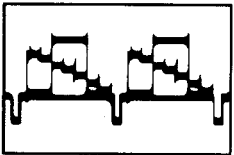
REC/PB 2.1 Vp-p
50 mV/20 μsec/DIV

WF14 IC1001-5



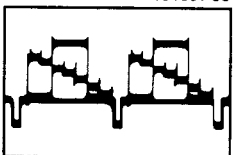
PB 0.54 Vp-p
20 mV/20 μsec/DIV

WF15-1 IC1001-56



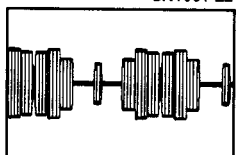
REC 0.5 Vp-p
20 mV/20 μsec/DIV

WF15-2 IC1001-56



PB 0.58 Vp-p
20 mV/20 μsec/DIV

WF16 CN1001-22



PB 0.58 Vp-p
10 mV/10 μsec/DIV

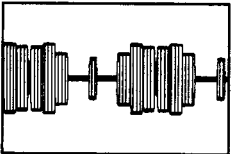
— Y/C SEP —

WF1 IC1401-73



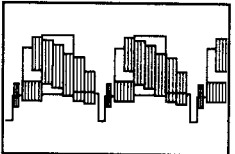
REC 0.9 Vp-p
20 mV/20 μsec/DIV

WF2 IC1401-75



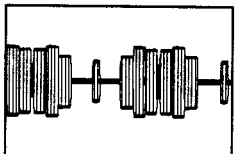
REC/PB 1.0 Vp-p
20 mV/10 μsec/DIV

WF3 IC1401-82



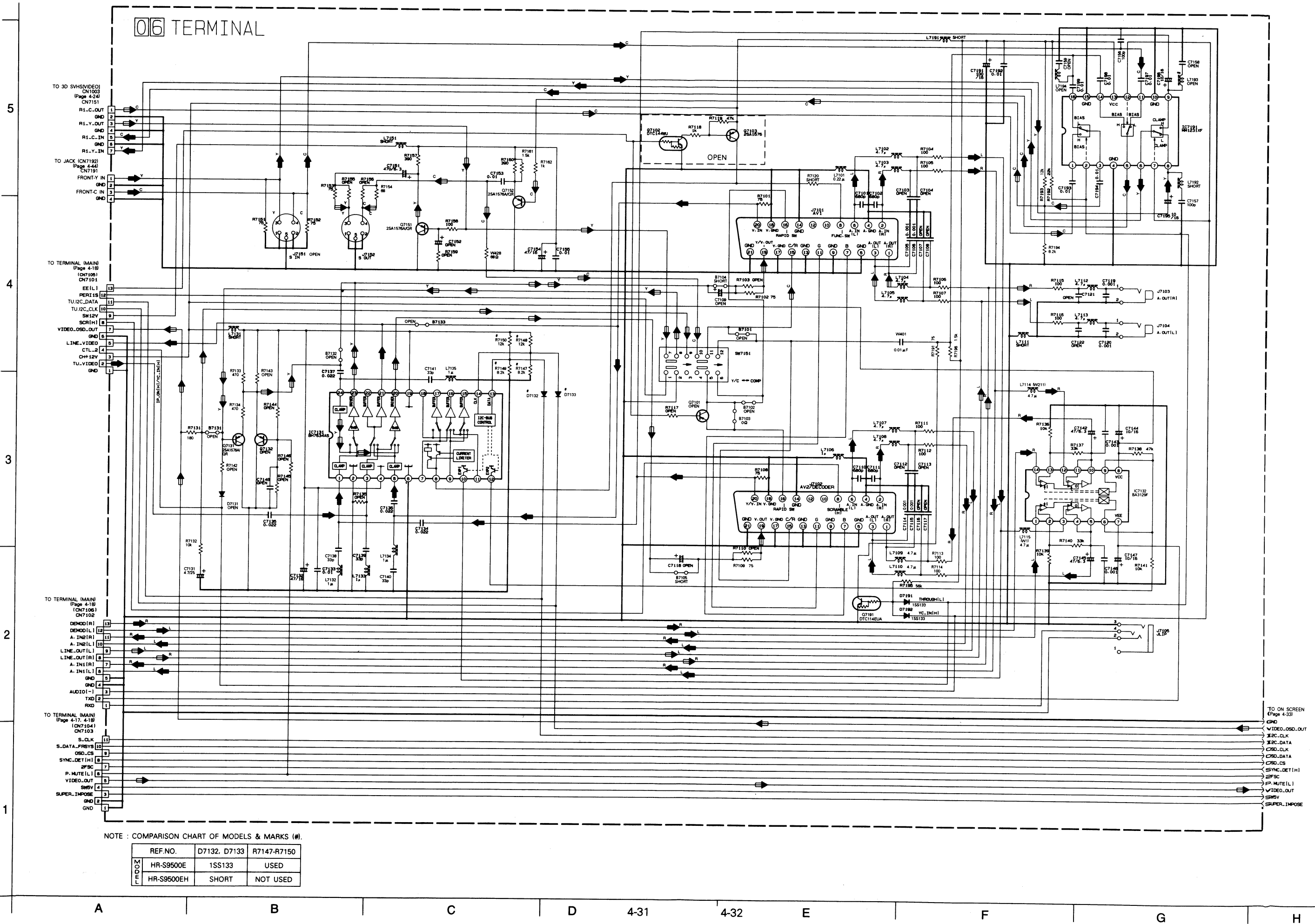
REC 1.9 Vp-p
50 mV/20 μsec/DIV

WF4 IC1401-87



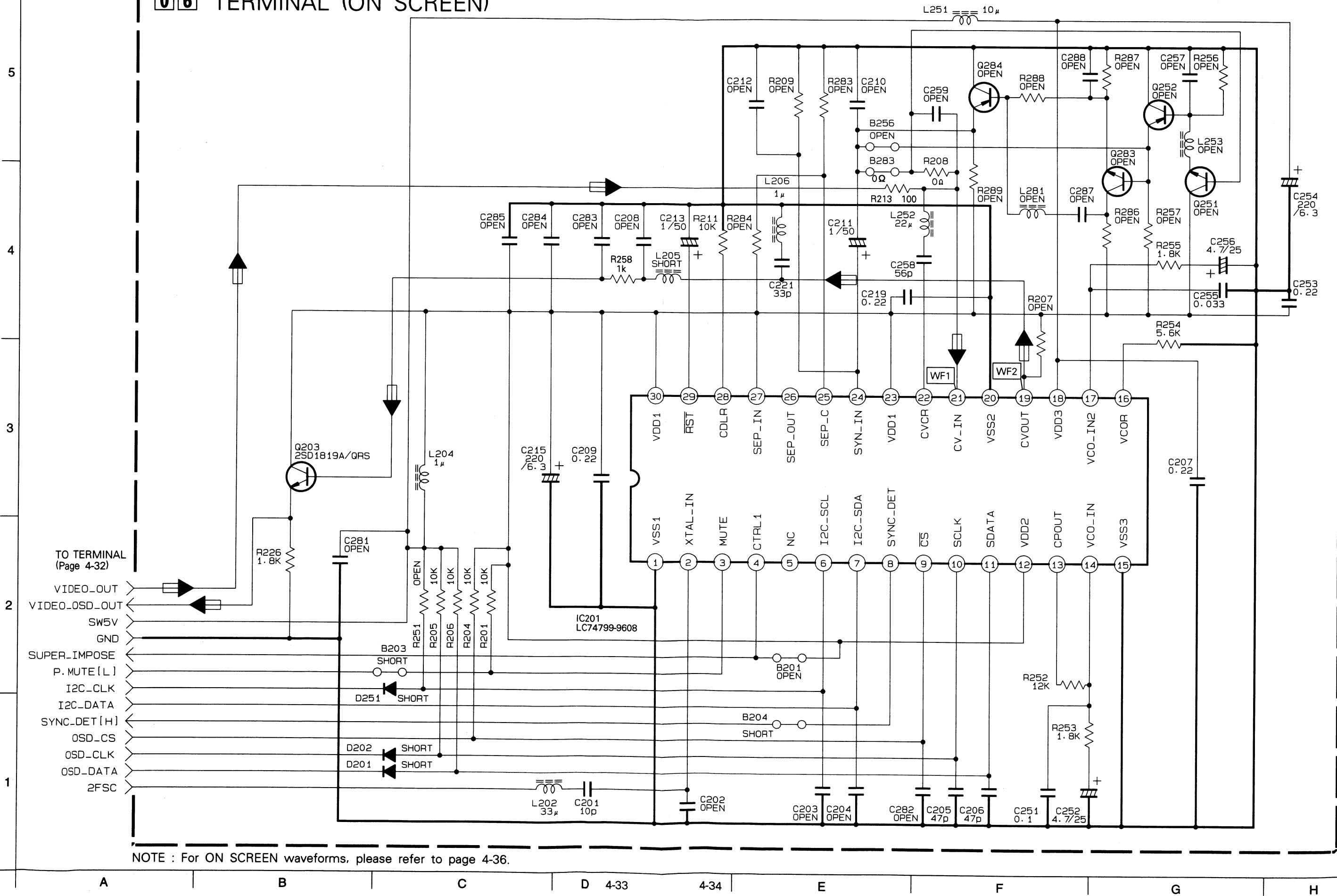
PB 1.4 Vp-p
50 mV/10 μsec/DIV

4.13 TERMINAL SCHEMATIC DIAGRAM



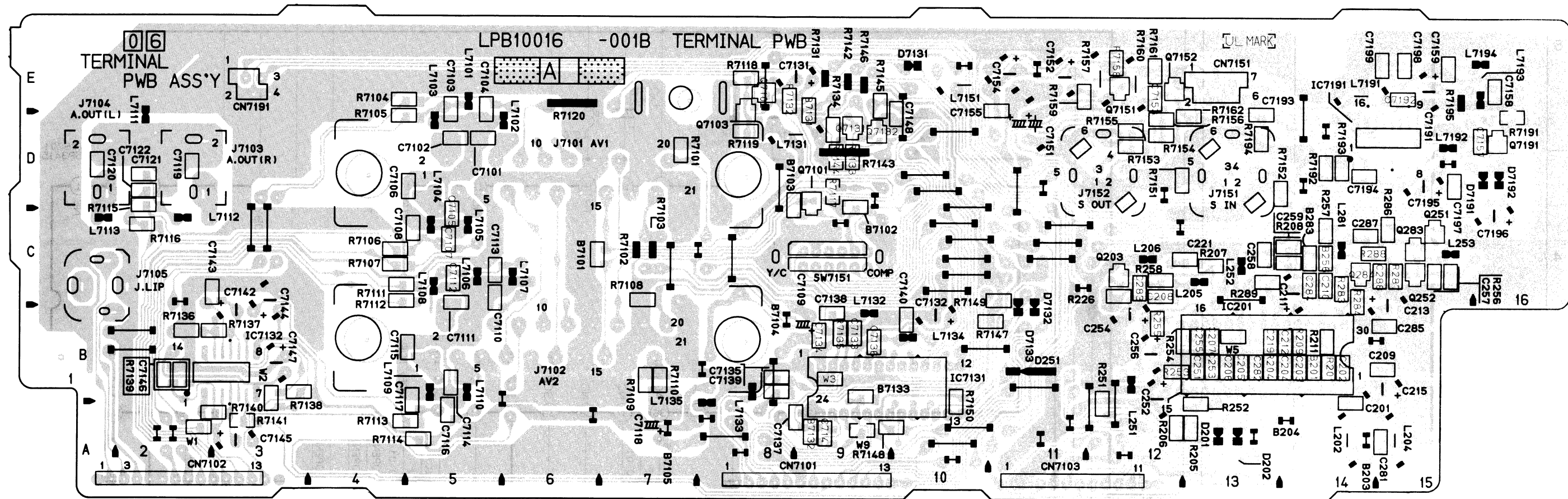
4.14 ON SCREEN SCHEMATIC DIAGRAM

06 TERMINAL (ON SCREEN)



NOTE : For ON SCREEN waveforms, please refer to page 4-36.

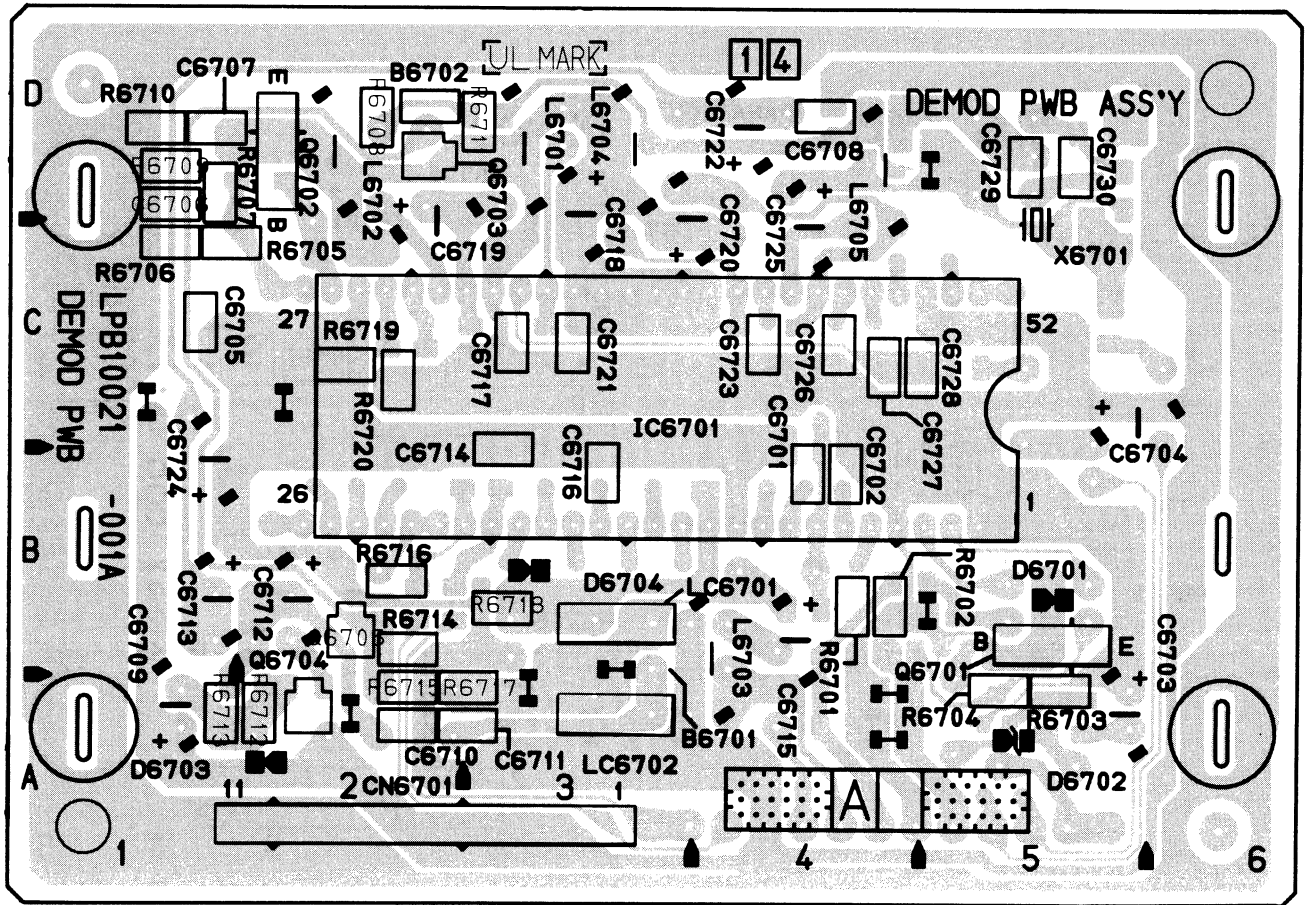
4.15 TERMINAL CIRCUIT BOARD AND WAVEFORMS



COMPONENT PARTS LOCATION GUIDE <TERMINAL>

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR				C7104	B C	C7105	B C	C7106	B C	C7107	B C	C7108	B C
C201	B C	14B	C	C7109	B C	C7110	B C	C7111	B C	C7112	B C	C7113	B C
C202	B C	14B	C	C7114	B C	C7115	B C	C7116	B C	C7117	B C	C7118	B C
C203	B C	14B	C	C7119	B C	C7120	B C	C7121	B C	C7122	B C	C7123	B C
C204	B C	14B	C	C7124	B C	C7125	B C	C7126	B C	C7127	B C	C7128	B C
C205	B C	13B	C	C7129	B C	C7130	B C	C7131	B C	C7132	B C	C7133	B C
C206	B C	13B	C	C7134	B C	C7135	B C	C7136	B C	C7137	B C	C7138	B C
C207	B C	13B	C	C7139	B C	C7140	B C	C7141	B C	C7142	B C	C7143	B C
C208	B C	12C	C	C7144	B C	C7145	B C	C7146	B C	C7147	B C	C7148	B C
C209	B C	15B	C	C7149	B C	C7150	B C	C7151	B C	C7152	B C	C7153	B C
C210	B C	14C	C	C7154	B C	C7155	B C	C7156	B C	C7157	B C	C7158	B C
C211	B C	14C	C	C7159	B C	C7160	B C	C7161	B C	C7162	B C	C7163	B C
C212	B C	14B	C	C7164	B C	C7165	B C	C7166	B C	C7167	B C	C7168	B C
C213	B C	15C	C	C7169	B C	C7170	B C	C7171	B C	C7172	B C	C7173	B C
C214	B C	15C	C	C7174	B C	C7175	B C	C7176	B C	C7177	B C	C7178	B C
C215	B C	15B	C	C7179	B C	C7180	B C	C7181	B C	C7182	B C	C7183	B C
C216	B C	13B	C	C7184	B C	C7185	B C	C7186	B C	C7187	B C	C7188	B C
C217	B C	13C	C	C7189	B C	C7190	B C	C7191	B C	C7192	B C	C7193	B C
C218	B C	13C	C	C7194	B C	C7195	B C	C7196	B C	C7197	B C	C7198	B C
C219	B C	13C	C	C7199	B C	C7200	B C	C7201	B C	C7202	B C	C7203	B C
C220	B C	13C	C	C7204	B C	C7205	B C	C7206	B C	C7207	B C	C7208	B C
C221	B C	13C	C	C7209	B C	C7210	B C	C7211	B C	C7212	B C	C7213	B C
C222	B C	13C	C	C7214	B C	C7215	B C	C7216	B C	C7217	B C	C7218	B C
C223	B C	13C	C	C7219	B C	C7220	B C	C7221	B C	C7222	B C	C7223	B C
C224	B C	13C	C	C7224	B C	C7225	B C	C7226	B C	C7227	B C	C7228	B C
C225	B C	13C	C	C7229	B C	C7230	B C	C7231	B C	C7232	B C	C7233	B C
C226	B C	13C	C	C7234	B C	C7235	B C	C7236	B C	C7237	B C	C7238	B C
C227	B C	13C	C	C7239	B C	C7240	B C	C7241	B C	C7242	B C	C7243	B C
C228	B C	13C	C	C7244	B C	C7245	B C	C7246	B C	C7247	B C	C7248	B C
C229	B C	13C	C	C7249	B C	C7250	B C	C7251	B C	C7252	B C	C7253	B C
C230	B C	13C	C	C7254	B C	C7255	B C	C7256	B C	C7257	B C	C7258	B C
C231	B C	13C	C	C7259	B C	C7260	B C	C7261	B C	C7262	B C	C7263	B C
C232	B C	13C	C	C7264	B C	C7265	B C	C7266	B C	C7267	B C	C7268	B C
C233	B C	13C	C	C7269	B C	C7270	B C	C7271	B C	C7272	B C	C7273	B C
C234	B C	13C	C	C7274	B C	C7275	B C	C7276	B C	C7277	B C	C7278	B C
C235	B C	13C	C	C7279	B C	C7280	B C	C7281	B C	C7282	B C	C7283	B C
C236	B C	13C	C	C7284	B C	C7285	B C	C7286	B C	C7287	B C	C7288	B C
C237	B C	13C	C	C7289	B C	C7290	B C	C7291	B C	C7292	B C	C7293	B C
C238	B C	13C	C	C7294	B C	C7295	B C	C7296	B C	C7297	B C	C7298	B C
C239	B C	13C	C	C7299	B C	C7300	B C	C7301	B C	C7302	B C	C7303	B C
C240	B C	13C	C	C7304	B C	C7305	B C	C7306	B C	C7307	B C	C7308	B C
C241	B C	13C	C	C7309	B C	C7310	B C	C7311	B C	C7312	B C	C7313	B C
C242	B C	13C	C	C7314	B C	C7315	B C	C7316	B C	C7317	B C	C7318	B C
C243	B C	13C	C	C7319	B C	C7320	B C	C7321	B C	C7322	B C	C7323	B C
C244	B C	13C	C	C7324	B C	C7325	B C	C7326	B C	C7327	B C	C7328	B C
C245	B C	13C	C	C7329	B C	C7330	B C	C7331	B C	C7332	B C	C7333	B C
C246	B C	13C	C	C7334	B C	C7335	B C	C7336	B C	C7337	B C	C7338	B C
C247	B C	13C	C	C7339	B C	C7340	B C	C7341	B C	C7342	B C	C7343	B C
C248	B C	13C	C	C7344	B C	C7345	B C	C7346	B C	C7347	B C	C7348	B C
C249	B C	13C	C	C7349	B C	C7350	B C	C7351	B C	C7352	B C	C7353	B C
C250	B C	13C	C	C7354	B C	C7355	B C	C7356	B C	C7357	B C	C7358	B C
C251	B C	13C	C	C7359	B C	C7360	B C	C7361	B C	C7362	B C	C7363	B C
C252	B C	13C	C	C7364	B C	C7365	B C	C7366	B C	C7367	B C	C7368	B C
C253	B C	13C	C	C7369	B C	C7370	B C	C7371	B C	C7372	B C	C7373	B C
C254	B C	13C	C	C7374	B C	C7375	B C	C7376	B C	C7377	B C	C7378	B C
C255	B C	13C	C	C7379	B C	C7380	B C	C7381	B C	C7382	B C	C7383	B C
C256	B C	13C	C	C7384	B C	C7385	B C	C7386	B C	C7387	B C	C7388	B C
C257	B C	13C	C	C7389	B C	C7390	B C	C7391	B C	C7392	B C	C7393	B C
C258	B C	13C	C	C7394	B C	C7395	B C	C7396	B C	C7397	B C	C7398	B C
C259	B C	13C	C	C7399	B C	C7400	B C	C7401	B C	C7402	B C	C7403	B C
C260	B C	13C	C	C7404	B C	C7405	B C	C7406	B C	C7407	B C	C7408	B C
C261	B C	13C	C	C7409	B C	C7410	B C	C7411	B C	C7412	B C	C7413	B C
C262	B C	13C	C	C7414	B C	C7415	B C	C7416	B C	C7417	B C	C7418	B C
C263	B C	13C	C	C7419	B C	C7420	B C	C7421	B C	C7422	B C	C7423	B C
C264	B C	13C	C	C7424	B C	C7425	B C	C7426	B C	C7427	B C	C7428	B C
C265	B C	13C	C	C7429	B C	C7430	B C	C7431	B C	C7432	B C	C7433	B C
C266	B C	13C	C	C7434	B C	C7435	B C	C7436	B C	C7437	B C	C7438	B C
C267	B C	13C	C	C7439	B C	C7440	B C	C7441	B C	C7442	B C	C7443	B C
C268	B C	13C	C	C7444	B C	C7445	B C	C7446	B C	C7447	B C	C7448	B C
C269	B C	13C	C	C7449	B C	C7450	B C	C7451	B C	C7452	B C	C7453	B C
C270	B C	13C	C	C7454	B C	C7455	B C	C7456	B C	C7457	B C	C7458	B C
C271	B C	13C	C	C7459	B C	C7460	B C	C7461	B C	C7462	B C	C7463	B C
C272	B C	13C	C	C7464	B C	C7465	B C	C7466	B C	C7467	B C	C7468	B C
C273	B C	13C	C	C7469	B C	C7470	B C	C7471	B C	C7472	B C	C7473	B C
C274	B C	13C	C	C7474	B C	C7475	B C	C7476	B C	C7477	B C	C7478	B C
C275	B C	13C	C	C7479	B C	C7480	B C	C7481	B C	C7482	B C	C7483	B C
C276	B C	13C	C	C7484	B C	C7485	B C	C7486	B C	C7487	B C	C7488	B C
C277	B C	13C	C	C7489	B C	C7490	B C	C7491	B C	C7492	B C	C7493	B C
C278	B C	13C	C	C7494	B C	C7495	B C	C7496	B C	C7497	B C	C7498	B C
C279	B C	13C	C	C7499	B C	C7500	B C	C7501	B C	C7502	B C	C7503	B C
C280	B C	13C	C	C7504	B C	C7505	B C	C7506	B C	C7507	B C	C7508	B C
C281	B C	13C	C	C7509	B C	C7510	B C	C7511	B C	C7512	B C	C7513	B C
C282	B C	13C	C	C7514	B C	C7515	B C	C7516	B C	C7517	B C	C7518	B C
C283	B C	13C	C	C7519	B C	C7520	B C	C7521	B C	C7522	B C	C7523	B C
C284	B C	13C	C	C7524	B C	C7525	B C	C7526	B C	C7527	B C	C7528	B C
C285	B C	13C	C	C7529	B C	C7530	B C	C7531	B C	C7532	B C	C7533	B C
C286	B C	13C	C	C7534	B C	C7535	B C	C7536	B C	C7537	B C	C7538	B C
C287	B C	13C	C	C7539	B C	C7540	B C	C7541	B C	C7542	B C	C7543	B C
C288	B C	13C	C	C7544	B C	C7545	B C	C7546	B C	C7547	B C	C7548	B C
C289	B C	13C	C	C7549	B C	C7550	B C	C7551	B C	C7552	B C	C7553	B C
C290	B C	13C	C	C7554	B C	C7555	B C	C7556	B C	C7557	B C	C7558	B C
C291	B C	13C	C	C7559	B C	C7560	B C	C7561	B C	C7562	B C	C7563	B C
C292	B C	13C	C	C7564	B C	C7565	B C	C7566	B C	C7567	B C	C7568	B C
C293	B C	13C	C	C7569	B C	C7570	B C	C7571	B C	C7572	B C	C7573	B C
C294	B C	13C	C	C7574	B C	C7575	B C	C7576	B C	C7577	B C	C7578	B C
C295	B C	13C	C	C7579	B C	C7580	B C	C7581	B C	C7582	B C	C7583	B C
C296	B C	13C	C	C7584	B C	C7585	B C	C7586	B C	C7587	B C	C7588	B C
C297	B C	13C	C	C7589	B C	C7590	B C	C7591	B C	C7592	B C	C7593	B C
C298	B C	13C	C	C7594	B C	C7595	B C	C7596	B C	C7597	B C	C7598	B C
C299	B C	13C	C	C7599	B C	C7600	B C	C7601	B C	C7602	B C	C7603	B C
C300	B C	13C	C	C7604	B C	C7605	B C	C7606	B C	C7607	B C	C7608	B C
C301	B C	13C	C	C7609	B C	C7610	B C	C7611	B C	C7612	B C	C7613	B C
C302	B C	13C	C	C7614	B C	C7615	B C	C7616	B C	C7617	B C	C7618	B C
C303	B C	13C	C	C7619	B C	C7620	B C	C7621	B C	C7622	B C	C7623	B C
C304	B C	13C	C	C7624	B C	C7625	B C	C7626	B C	C7627	B C	C7628	B C
C305	B C	13C	C	C7629	B C	C7630	B C	C7631	B C	C7632	B C	C7633	B C
C306	B C	13C	C	C7634	B C	C7635	B C	C7636	B C	C7637	B C	C7638	B C
C307	B C	13C	C	C7639	B C	C7640	B C	C7641	B C	C7642	B C	C7643	B C
C308	B C	12C	C	C7644	B C	C7645	B C	C7646	B C	C7647	B C	C7648	B C
C309	B C	15B	C	C7649	B C	C7650	B C	C7651	B C	C7652	B C	C7653	B C
C310	B C	14C	C	C7654	B C	C7655	B C	C7656	B C	C7657	B C	C7658	B C
C311	B C	14C	C	C7659	B C	C7660	B C	C7661	B C	C7662	B C	C7663	B C
C312	B C	14B	C	C7664	B C	C7665	B C	C7666	B C	C7667	B C	C7668	B C
C313	B C	15C	C	C7669	B C	C7670	B C	C7671	B C	C7672	B C	C7673	B C
C314	B C	15C	C	C7674	B C	C7675	B C	C7676	B C	C7677	B C	C7678	B C
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C316													

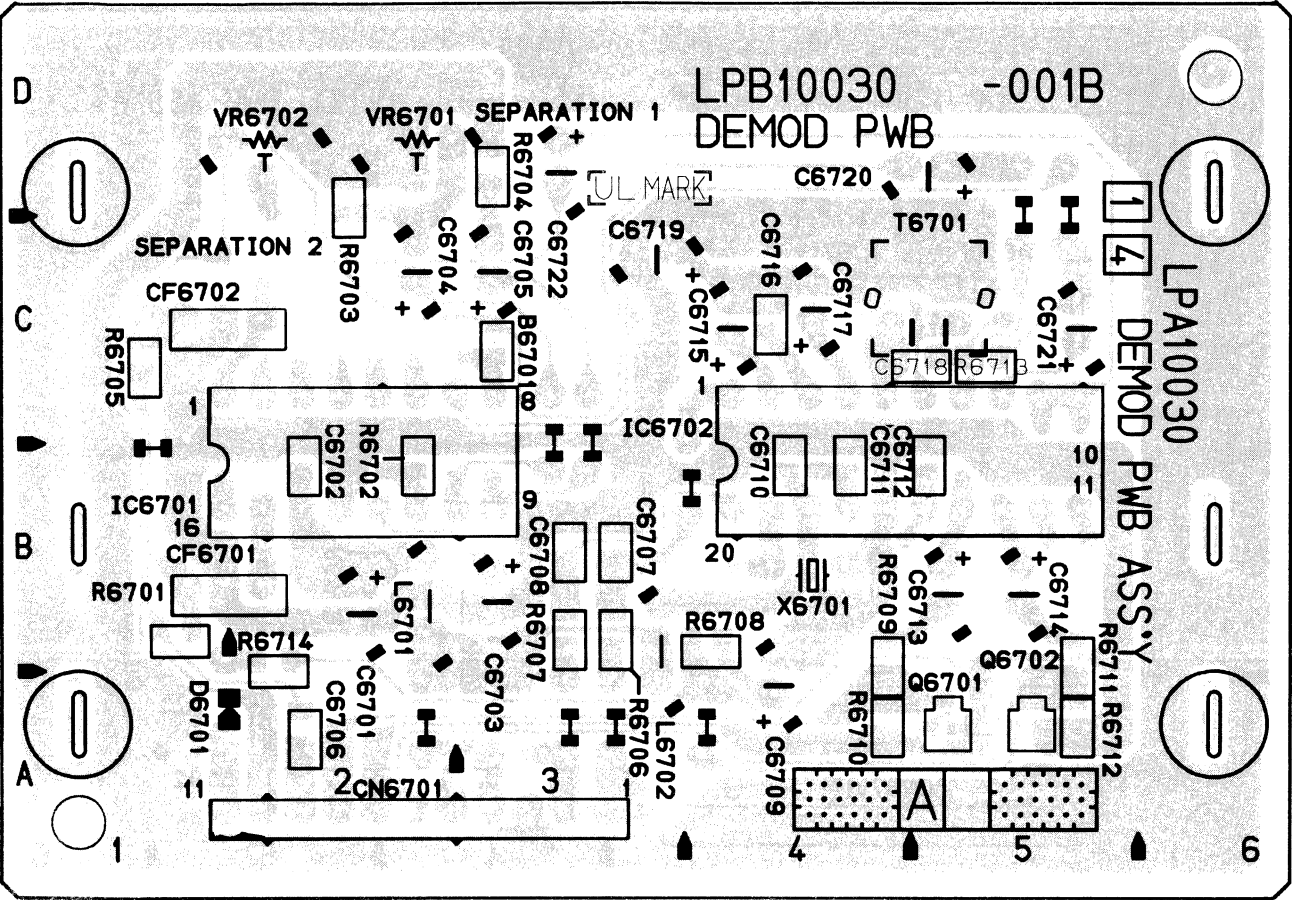
4.17 DEMODULATOR CIRCUIT BOARD [HR-S9500EH]



COMPONENT PARTS LOCATION GUIDE <DEMODULATOR>

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CAPACITOR				C6717	B	C	3C	DIODE				Q6702	A	D	2D	R6712	B	C	2A
C6701	B	C	4B	C6718	A	D	3D	D6701	A	D	5B	Q6703	B	C	2D	R6713	B	C	1A
C6702	B	C	4B	C6719	A	D	2D	D6702	A	D	5A	Q6704	B	C	2A	R6714	B	C	2B
C6703	A	D	5A	C6720	A	D	3C	D6703	A	D	2A	Q6705	B	C	2B	R6715	B	C	2A
C6704	A	D	5C	C6721	B	C	3C	D6704	A	D	3B	RESISTOR			R6716	B	C	2B	
C6705	B	C	1C	C6722	A	D	4D	IC			R6701	B	C	4B	R6717	B	C	3A	
C6706	B	C	1D	C6723	B	C	4C	IC6701	A	D	5B	R6702	B	C	4B	R6718	B	C	3B
C6707	B	C	1D	C6724	A	D	1B	COIL			R6703	B	C	5A	R6719	B	C	2C	
C6708	B	C	4D	C6725	A	D	4D	L6701	A	D	3D	R6704	B	C	5A	R6720	B	C	2C
C6709	A	D	1A	C6726	B	C	4C	L6702	A	D	2D	R6705	B	C	1C	OTHERS			
C6710	B	C	2A	C6727	B	C	4C	L6703	A	D	4A	R6706	B	C	1C	LC6701	A	D	3B
C6711	B	C	3A	C6728	B	C	5C	L6704	A	D	3D	R6707	B	C	1D	LC6702	A	D	3A
C6712	A	D	2B	C6729	B	C	5D	L6705	A	D	4D	R6708	B	C	2D	X6701	A	D	5D
C6713	A	D	1B	C6730	B	C	5D	CONNECTOR				R6709	B	C	1D				
C6714	B	C	3C	CONNECTOR				TRANSISTOR				R6710	B	C	1D				
C6715	A	D	4B	CN6701	A	D	3A	Q6701	A	D	5B	R6711	B	C	3D				
C6716	B	C	3B																

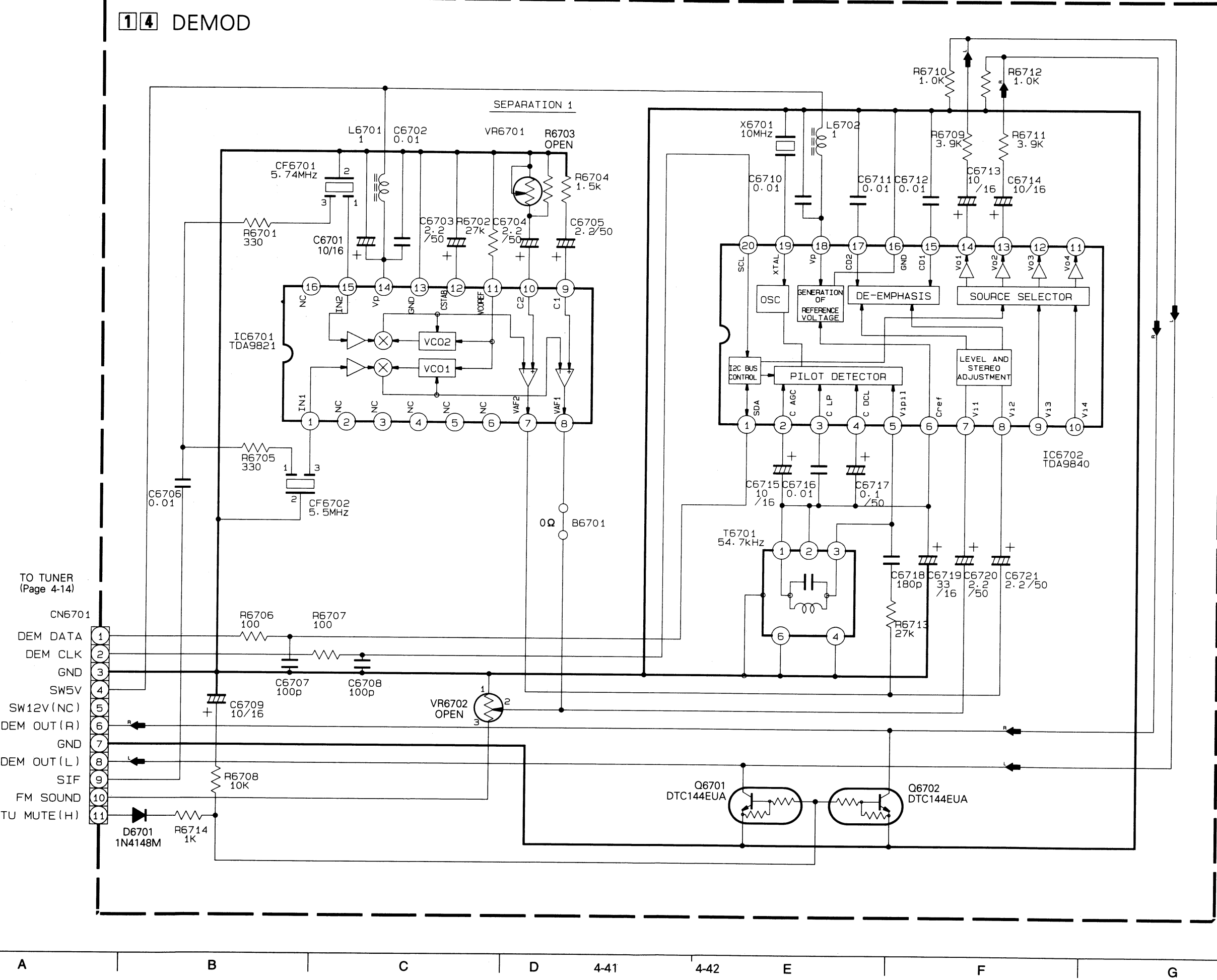
4.18 DEMODULATOR CIRCUIT BOARD [HR-S9500E]



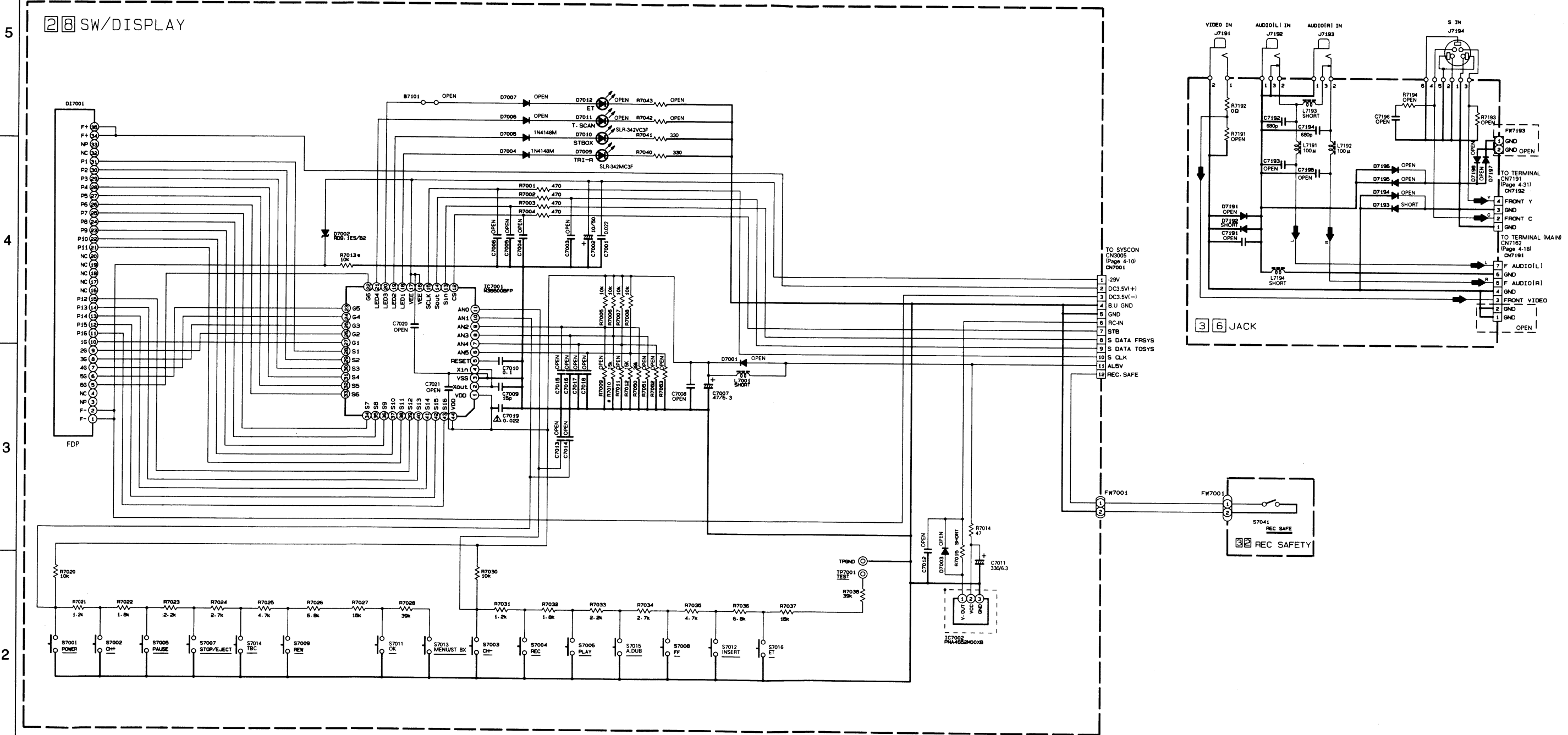
COMPONENT PARTS LOCATION GUIDE < DEMODULATOR >

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR		C6717	A D 4C	COIL		R6707	B C 3B
C6702	B C 2B	C6718	B C 5C	L6701	A D 2B	R6708	B C 4B
C6703	A D 3B	C6719	A D 4C	L6702	A D 3B	R6709	B C 4B
C6704	A D 2C	C6720	A D 5D	TRANSISTOR		R6710	B C 4A
C6705	A D 3C	C6721	A D 5C	Q6701	B C 5A	R6711	B C 5B
C6706	B C 2A	C6722	A D 3D	Q6702	B C 5A	R6712	B C 5A
C6707	B C 3B	CONNECTOR		RESISTOR		R6713	B C 5C
C6708	B C 3B	CN6701	A D 3A	R6701	B C 1B	R6714	B C 2B
C6709	A D 4A	DIODE		R6702	B C 2B	OTHER	
C6710	B C 4B	D6701	A D 2A	R6703	B C 2D	CF6701	A D 2B
C6711	B C 4B	IC		R6704	B C 3D	CF6702	A D 1C
C6712	B C 5B	IC6701	A D 2C	R6705	B C 1C	T6701	A D 5C
C6713	A D 5B	IC6702	A D 4C	R6706	B C 3B	VR6701	A D 2D
C6714	A D 5B					VR6702	A D 2D
C6715	A D 4C					X6701	A D 4B
C6716	B C 4C						

4.19 DEMODULATOR SCHEMATIC DIAGRAM [HR-S9500E]



4.20 SW/DISPLAY, REC SAFETY AND JACK SCHEMATIC DIAGRAMS



NOTE : COMPARISON CHART OF MODELS & MARK (#).

REF.NO.	R7010
HR-S9500E	NOT USED
HR-S9500EH	USED

A

B

C

D 4-43

4-44

E

F

G

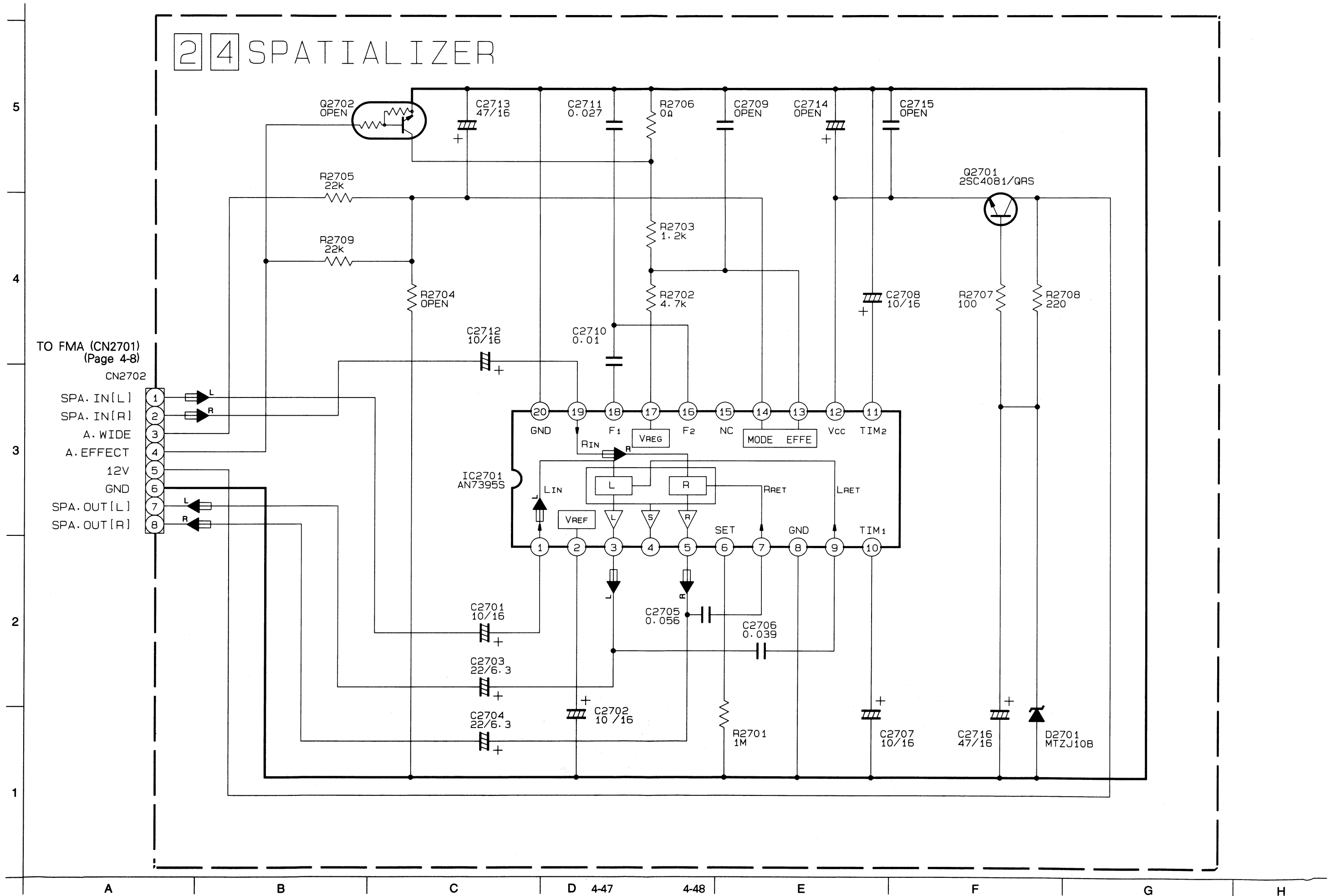
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— JACK —

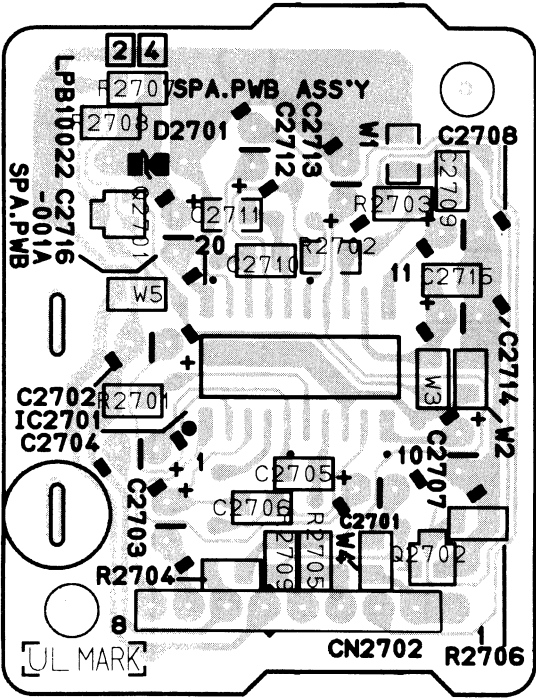


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C7001	A D 2A	C7020	A D 5A	IC7001	B C 6A	R7014	A D 1A	R7040	A D 1C	S7012	A D 8A
C7002	A D 2A	C7021	A D 6A	IC7002	A D 2A	R7015	A D 1A	R7041	A D 10C	S7013	A D 10B
C7003	A D 1A	CONNECTOR		COIL		R7020	A D 7A	R7042	A D 3A	S7014	A D 1B
C7004	A D 4A	CN7001	A D 1A	L7001 A D 1B		R7021	A D 11B	R7043	A D 11C	S7015	A D 8A
C7005	A D 4A	DIODE		RESISTOR		R7022	A D 11B	R7050	A D 8A	S7016	A D 11B
C7006	A D 4A	D7001	A D 1B	R7001	A D 4A	R7023	A D 2A	R7051	A D 8A	S7041	A D 9B
C7007	A D 1B	D7002	A D 7A	R7002	A D 5A	R7024	A D 2A	R7052	A D 8A	OTHER	
C7008	A D 1B	D7003	A D 1A	R7003	A D 4A	R7025	A D 4B	R7053	A D 8A	DI7001	A D 6A
C7009	A D 6A	D7004	A D 1C	R7004	A D 4A	R7026	A D 4A	SWITCH		FW7001	A D 9A
C7010	A D 6A	D7005	A D 10B	R7005	A D 7A	R7027	A D 3B	S7001	A D 11B	FW7001	A D 9B
C7011	A D 1A	D7006	A D 4A	R7006	A D 6A	R7028	A D 3A	S7002	A D 8A	TP7001	A D 9A
C7012	A D 4A	D7007	A D 10B	R7007	A D 6A	R7030	A D 7A	S7003	A D 8A	TPGND	A D 9A
C7013	A D 7A	D7008	A D 1C	R7008	A D 6A	R7031	A D 3A	S7004	A D 3A		
C7014	A D 7A	D7009	A D 10C	R7009	A D 8A	R7032	A D 2A	S7005	A D 1A		
C7015	A D 7A	D7010	A D 3A	R7010	A D 7A	R7033	A D 2B	S7006	A D 1B		
C7016	A D 7A	D7011	A D 11C	R7011	A D 7A	R7034	A D 9A	S7007	A D 9B		
C7017	A D 6A			R7012	A D 7A	R7035	A D 8A	S7008	A D 3A		
C7018	A D 6A					R7036	A D 9A	S7009	A D 3A		
						R7037	A D 9A				

4.22 SPATIALIZER SCHEMATIC DIAGRAM



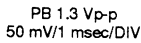
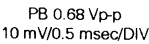
4.23 SPATIALIZER CIRCUIT BOARD



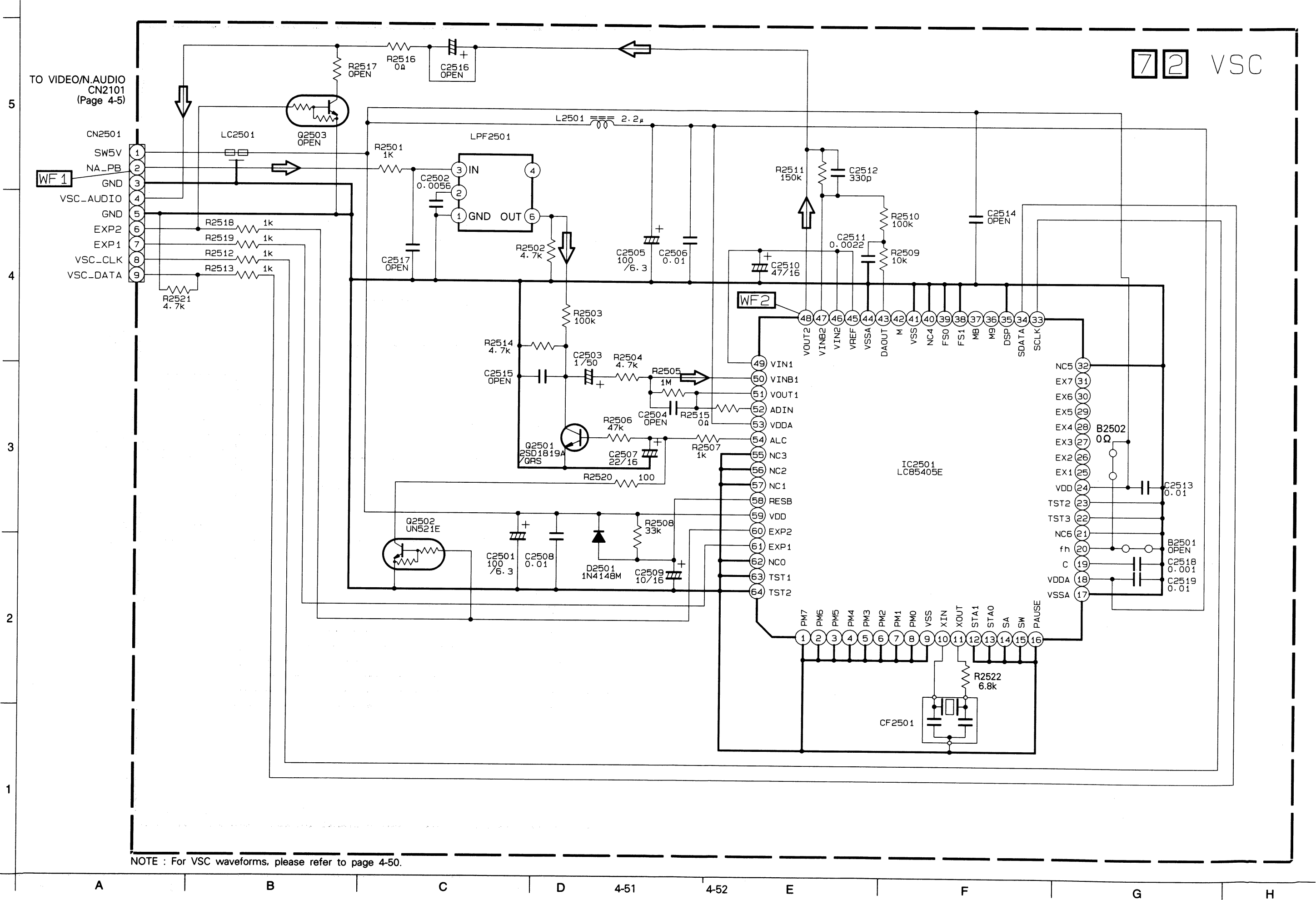
4-50



WF1 CN2501-2

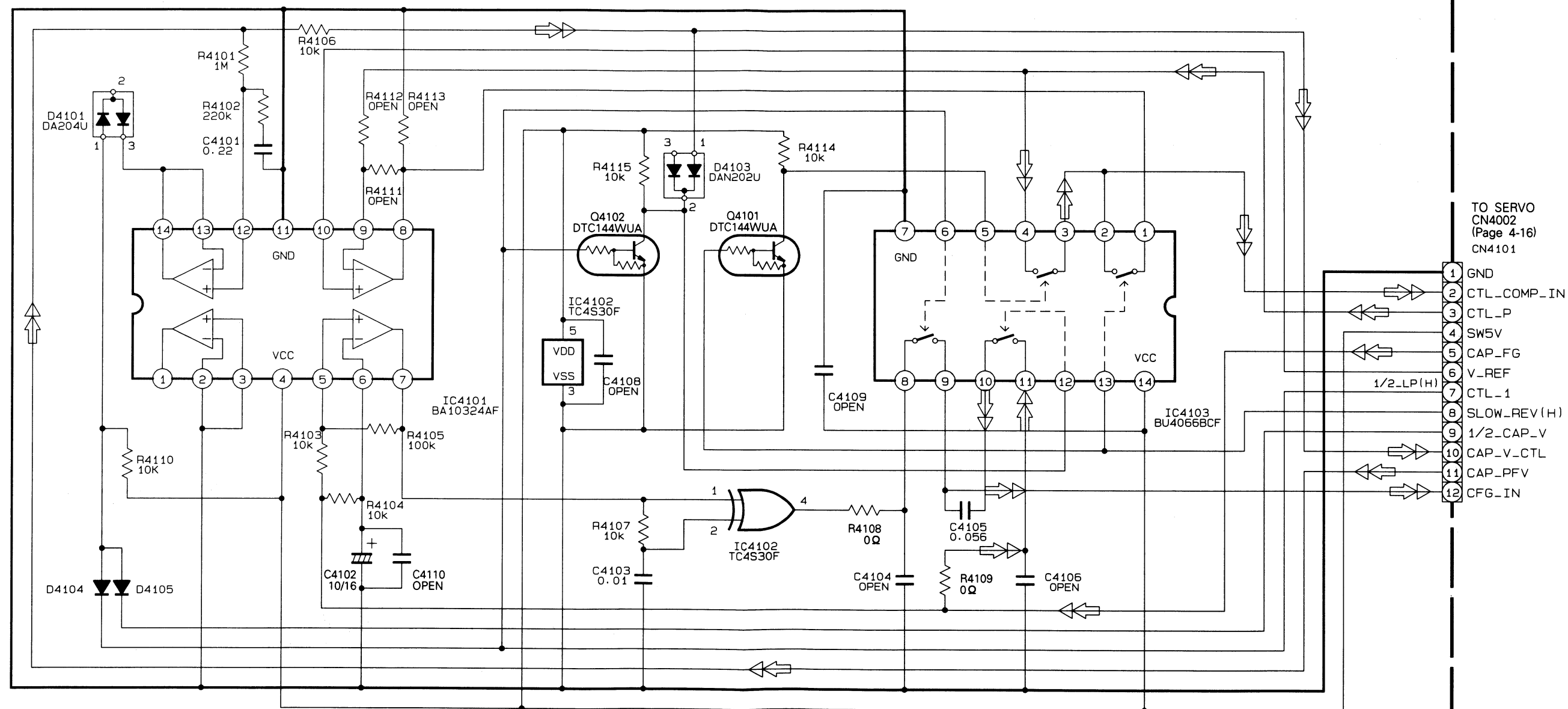


4.25 VSC SCHEMATIC DIAGRAM

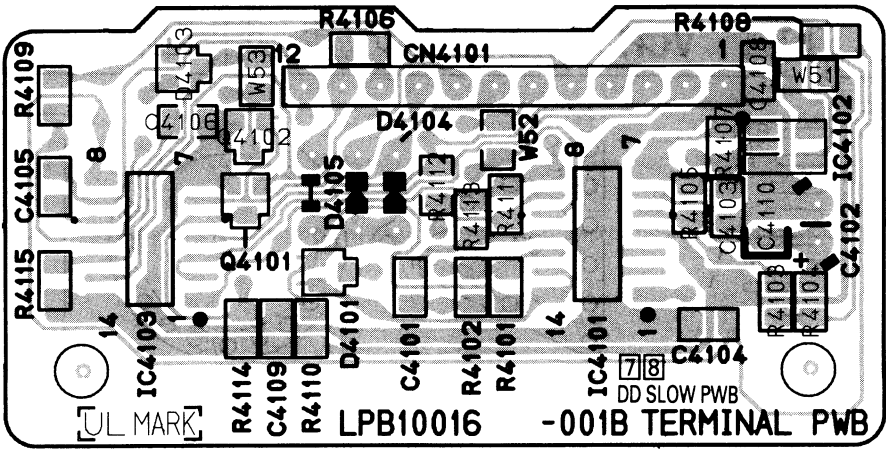


4.26 DD SLOW SCHEMATIC DIAGRAM

78 DD SLOW

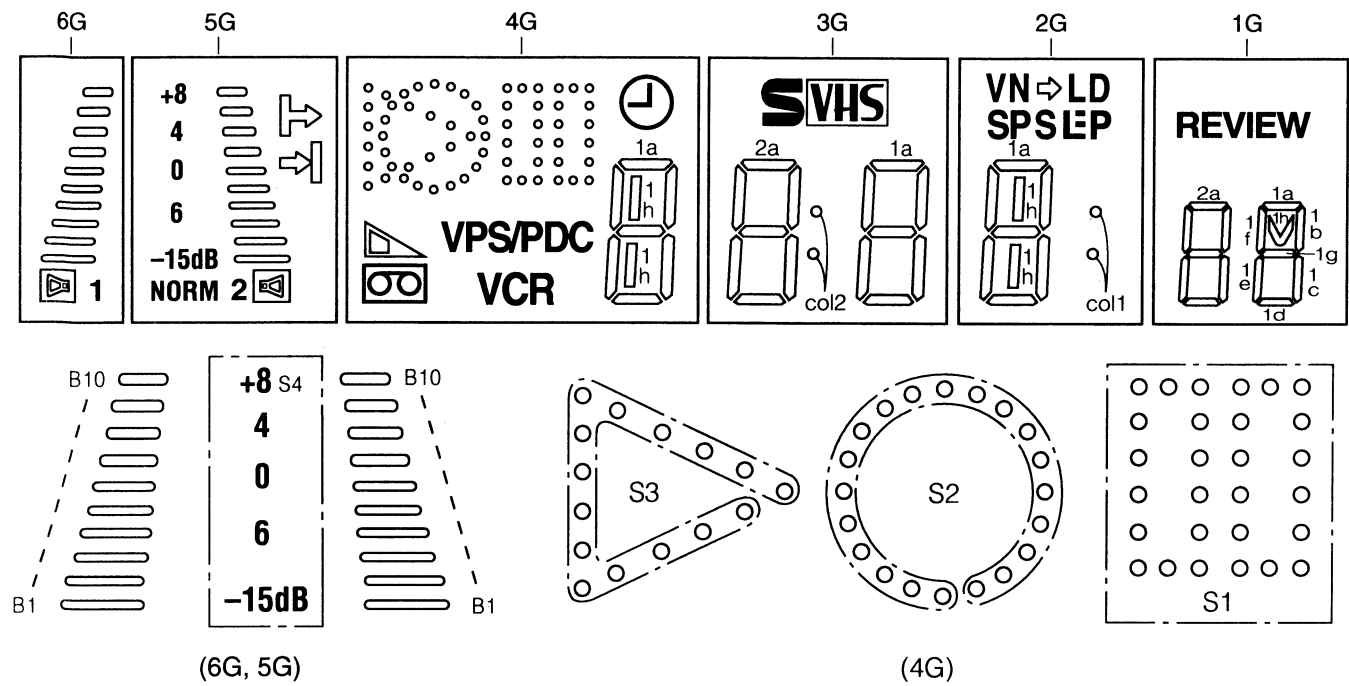


4.27 DD SLOW CIRCUIT BOARD



4.28 FDP GRID ASSIGNMENT AND ANODE CONNECTION

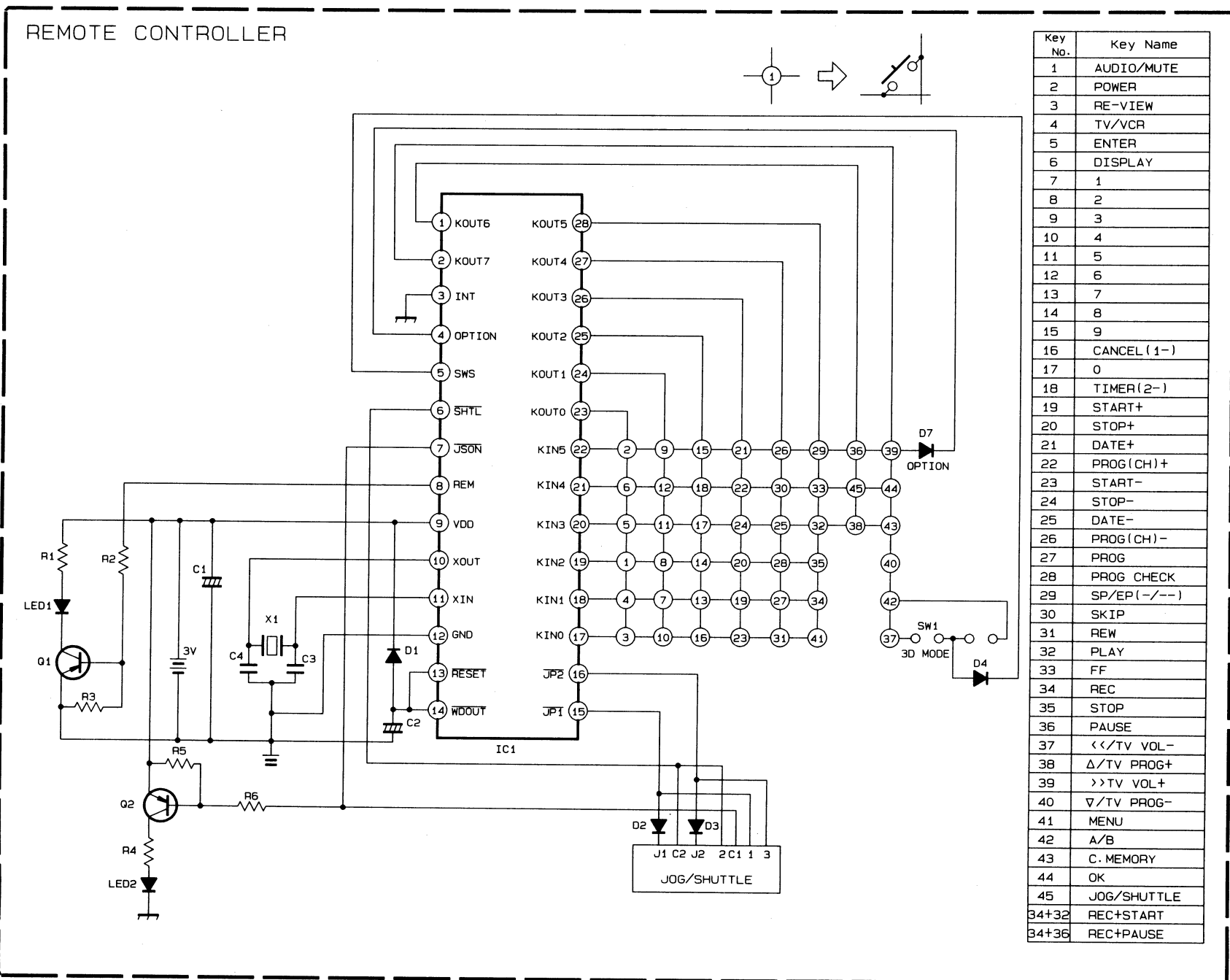
GRID ASSIGNMENT



ANODE CONNECTION

	6G	5G	4G	3G	2G	1G
P 1	—	→	S2	1a	1a	1a
P 2	—	⇨	S1	1b	1b	1b
P 3	—	S4	S3	1f	1f	1f
P 4	—	NORM	VPS/PDC	1g	1g	1g
P 5	1	2	⌚	1c	1c	1c
P 6	⌚	⌚	⌚	1e	1e	1e
P 7	B10	B10	⌚	1d	1d	1d
P 8	B9	B9	VCR	col2	1h	1h
P 9	B8	B8	1a	2a	col1	2a
P10	B7	B7	1b	2b	⇨	2b
P11	B6	B6	1f	2f	VN	2f
P12	B5	B5	1g	2g	LD	2g
P13	B4	B4	1c	2c	SP	2c
P14	B3	B3	1e	2e	S _(SEP)	2e
P15	B2	B2	1d	2d	⌚ _(SEP)	2d
P16	B1	B1	1h	SVHS	LP _(SEP)	REVIEW

4.29 REMOTE CONTROL SCHEMATIC DIAGRAM



NOTES:
 1. All parts shown in this schematic are critical for safety.
 2. This schematic is only for reference.
 Avoid replacing individual parts.
 Replace the entire unit only.

A

B

C

D

4.30 VOLTAGE CHARTS

<VIDEO/N.AUDIO>

MODE PIN NO.	REC	PLAY
IC1		
1	2.5	2.5
2	2.4	2.4
3	0	0
4	2.2	2.2
5	0	0
6	0.3	0.5
7	2.4	2.4
8	2.4	2.4
9	2.4	2.4
10	2.4	2.4
11	2.4	2.4
12	5.0	5.0
13	1.8	1.6
14	1.8	1.5
15	2.6	1.9
16	1.5	0.7
17	2.0	2.0
18	2.2	2.2
19	3.0	3.0
20	2.7	2.7
21	2.3	2.3
22	2.3	2.3
23	3.0	3.0
24	2.0	2.0
25	1.4	1.4
26	2.0	2.0
27	0	0
28	5.0	5.0
29	1.1	1.1
30	3.2	3.2
31	2.7	2.7
32	0	0
33	0	0
34	0	0
35	3.0	3.0
36	5.0	5.0
37	0	0
38	5.0	5.0
39	3.1	3.1
40	5.0	5.0
41	5.0	5.0
42	1.9	1.9
43	5.0	5.0
44	2.5	2.5
45	0	0
46	2.0	2.0
47	0	0
48	0	0
49	0	0
50	0.4	0.4
51	1.3	1.3
52	1.3	1.3
53	3.0	3.0
54	1.9	1.9
55	2.0	2.0
56	2.2	2.8
57	0	0
58	3.0	3.0
59	3.4	3.4
60	2.1	2.1
61	4.9	4.9
62	4.6	4.6
63	4.6	4.6
64	0	0
65	1.7	1.7
66	5.0	5.0
67	4.9	4.9
68	0	0
69	2.7	2.7
70	2.8	2.8
71	2.1	2.1
72	2.2	2.1
73	1.6	1.6
74	2.7	1.0
75	2.1	2.1

MODE PIN NO.	REC	PLAY
76	2.5	2.5
77	4.7	4.6
78	2.7	2.7
79	4.3	2.1
80	0	0
81	-	-
82	1.2	1.2
83	2.5	2.5
84	0	0
85	0	0
86	2.4	2.4
87	2.1	2.1
88	2.1	2.1
89	2.4	2.4
90	5.0	5.0
91	0	0
92	0	0
93	0	0
94	0	0
95	2.8	2.8
96	5.0	5.0
97	0	0
98	5.0	5.0
99	0.6	0.6
100	2.5	2.5
IC2		
1	2.8	2.8
2	3.9	3.9
3	2.8	2.7
4	4.9	0
5	2.8	2.8
6	5.0	5.0
7	1.9	2.0
8	0	0
Q1		
E	4.2	4.2
C	0	0
B	3.6	3.6
Q2		
E	0	0
C	2.1	2.1
B	0	0
Q6		
E	2.7	2.7
C	0	0
B	2.0	2.0
Q13		
E	-	-
C	-	-
B	-	-
Q14		
E	-	-
C	-	-
B	-	-
Q15		
E	-	-
C	-	-
B	-	-
Q16		
E	5.1	5.1
C	5.0	0
B	0.1	5.1
Q17		
E	0	0
C	0	0
B	3.3	3.3
Q18		
E	3.2	0
C	0	1.9
B	0	0.1
Q38		
E	1.3	1.7
C	5.0	5.0
B	0.7	2.4
Q47		
E	4.9	4.9

MODE PIN NO.	REC	PLAY
C	2.2	2.1
B	3.0	2.9
Q48		
E	2.2	2.1
C	0	0
B	0.8	0.7
Q102		
E	-	-
C	-	-
B	-	-
Q152		
E	5.0	2.7
C	0	0
B	4.5	2.1
Q153		
E	2.1	2.1
C	5.0	5.0
B	2.7	2.7
Q401		
E	11.5	11.5
C	11.5	0.6
B	10.7	11.5
Q402		
E	0	0
C	0	11.5
B	4.9	0
Q403		
E	0	0
C	0	0.6
B	5.0	0
Q404		
E	7.6	0.6
C	0	0
B	7.1	0.6
Q405		
E	9.6	0.5
C	0	0
B	9.4	0.5
Q2001		
E	-11.9	0
C	0	0
B	-18.4	0.7
Q2002		
E	-11.9	0
C	0	0
B	-18.1	0.6
Q2003		
E	5.0	5.0
C	-18.2	5.0
B	4.9	0
Q2051		
E	0	0
C	8.0	0.3
B	0.4	0.2
Q2052		
E	11.4	11.5
C	11.2	3.5
B	10.7	11.4
Q2053		
E	0	0
C	0	3.5
B	4.9	0
Q2054		
E	11.2	3.5
C	11.0	0.2
B	10.4	3.5
Q2055		
E	0	0
C	0	2.5
B	4.5	0
Q2061		
E	0	0
C	7.3	0.2
B	0.2	0.2
Q2062		
E	10.7	0

MODE PIN NO.	REC	PLAY
C	10.6	0.3
B	0	0.3
Q2063		
E	0	0
C	0	0.3
B	5.0	0
Q2102		
E	0	0
C	0	0
B	5.0	5.0
CN1		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.4	2.2
6	2.4	2.2
7	2.1	2.2
8	2.1	2.2
9	4.2	0
10	4.1	0
11	4.1	0
12	0	0
13	0	0
CN101		
1	0	0
2	-	-
3	4.7	4.7
4	-	-
5	4.7	4.7
6	0	0
7	0	0
8	0	0
9	0.6	0.6
10	0	0
11	0	0
12	0	0
13	5.2	5.2
14	5.2	5.2
15	0	0
16	0	0
17	0.4	0.4
18	0	0
19	3.4	3.4
20	0	0
21	0.6	0.6
22	2.1	2.1
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
CN102		
1	1.5	1.1
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	1.4	1.1
8	2.3	2.1
9	0.8	1.8
10	4.3	4.3
11	2.4	2.4
12	3.3	3.3
13	0	0
14	0	0
15	2.3	2.3
16	0	0
17	4.7	4.7
18	4.6	4.6
19	5.2	5.2
20	5.2	5.2

MODE PIN NO.	REC	PLAY
21	2.4	2.4
22	0	0
23	1.7	1.7
24	0	0
25	0	0
26	2.6	2.6
27	2.2	2.2
28	0	0
29	0	0
30	0	0
CN2001		
1	0	0.1
2	0	0
3	0	0
4	0	0
5	0	0
6	1.7	2.5
7	1.9	2.5
CN2002		
1	0	0
2	0.1	0
CN2101		
1	5.1	5.1
2	0	0
3	0	0
4	2.6	2.6
5	0	0
6	0	0
7	4.9	4.9
8	0	0
9	0	0

<FMA>

MODE PIN NO.	REC	PLAY
IC2201		
1	1.9	2.0
2	0	0
3	2.5	2.5
4	0	0
5	0	0
6	2.5	2.5
7	0	0
8	2.5	2.5
9	1.4	1.4
10	0	0
11	2.5	2.4
12	2.5	2.5
13	2.5	2.4
14	2.0	2.0
15	2.5	0
16	4.6	4.6
17	4.6	4.6
18	0	2.6
19	0	0
20	0	1.6
21	2.0	2.0
22	0	0
23	0	0
24	2.0	2.0
25	2.5	2.3
26	2.5	2.4
27	2.5	2.5
28	0	0
29	1.4	1.4
30	2.6	2.5
31	5.0	5.0
32	0	0
33	2.5	2.5
34	0	0
35	0	0
36	1.9	2.0
37	2.5	2.5
38	2.5	2.5

MODE PIN NO.	REC	PLAY
39	9.5	9.5
40	0	0
41	4.4	4.4
42	0	0
43	0	0
44	0	0
45	4.3	4.3
46	4.4	4.4
47	0	0
48	1.1	1.2
IC2251		
1	0	-
2	4.2	0
3	0.5	0.6
4	0	0
5	0.5	0.6
6	4.2	0
7	4.1	0
8	2.5	2.5
9	0.6	0
10	4.9	5.0
11	3.0	3.9
12	0	0
13	1.8	1.0
14	1.9	1.8
15	0.2	0
16	4.4	0.8
Q2251		
E	4.4	0
C	4.4	0.8
B	0.5	0.3
Q2253		
E	2.5	0
C	0.5	0
B	0	4.6
Q2254		
E	4.9	0
C	0	0
B	0	5.0
Q2255		
E	5.0	5.0
C	5.0	5.0
B	0	0.1
Q2711		
E	0	0
C	0	0
B	-1.8	-2.0
Q2712		
E	0	0
C	0	0
B	-1.8	-2.0
Q2713		
E	5.7	5.8
C	-1.9	-2.0
B	5.7	5.8
Q2714		
E	0	0
C	5.7	5.8
B	0	0
CN2701		
1	0	0
2	0	0
3	0	0
4	0	0
5	11.4	11.5
6	0	0
7	0	0
8	0	0

<SYSCON>

MODE PIN NO.	REC	PLAY
IC3001		
1	1.1	1.2

MODE PIN NO.	REC	PLAY
2	0	0
3	5.0	5.0
4	5.0	5.0
5	0	0
6	0	0
7	1.5	1.5
8	1.2	1.3
9	0	0
10	-	-
11	-	-
12	5.1	5.1
13	0	0
14	0	0
15	0	4.9
16	5.0	5.0
17	0	0
18	0	0
19	4.2	4.2
20	0	0
21	0	0
22	5.1	5.0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	-	0.7
29	-	-
30	4.3	-
31	0.4	0.3
32	0.3	0.3
33	0.9	0.9
34	0.2	0.3
35	0.3	0.3
36	0.3	0.2
37	0.2	0.2
38	0.2	0.2
39	5.0	0
40	5.0	0
41	5.0	5.0
42	5.1	5.1
43	0	0
44	5.0	5.0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	4.9	4.9
51	0	0
52	5.1	0
53	0	0
54	0	0
55	0	0
56	-	-
57	1.1	1.0
58	5.0	5.0
59	4.7	4.7
60	5.1	5.1
61	4.5	4.6
62	0	0
63	5.1	5.1
64	0	0
65	0	0
66	0	0
67	-	0
68	0	0
69	3.0	3.5
70	-	-
71	-	-
72	5.1	5.1
73	5.0	5.1
74	5.0	5.0
75	5.0	5.1
76	5.0	5.0
77	4.5	4.5

MODE PIN NO.	REC	PLAY
78	1.7	1.7
79	4.0	2.5
80	0	0
IC3002		
1	0	0
2	12.2	12.2
3	1.8	2.0
4	0	0
5	0	0
6	12.1	12.2
7	1.9	2.0
8	12.2	12.1
9	0	0
IC3003		
1	5.1	5.1
2	5.1	5.1
3	0	0
IC3004		
1	0	0
2	0	0
3	0	0
4	0	0
5	-	-
6	-	-
7	0	0
8	5.0	5.0
IC3301		
1	0.2	1.5
2	0	0.6
3	5.0	5.0
4	5.0	5.1
5	0	0
6	0	0
7	0	0
8	5.0	5.0
9	0	0
10	-	-
11	-	-
12	-	-
13	0	0
14	5.0	5.0
15	5.0	5.1
16	0	0
17	0	0
18	0	0
19	4.8	4.9
20	4.9	5.0
21	4.6	4.6
22	-	-
23	-	-
24	-	-
25	4.6	4.6
26	0	0
27	0	0
28	0	0
29	-	-
30	0.8	0.7
31	0	0
32	5.0	5.1
33	0	0
34	0.2	0.2
35	0.2	0.2
36	0.3	0.3
37	0.3	0.3
38	0.2	0.2
39	0.8	0.8
40	0.3	0.3
41	0.2	0.5
42	4.3	4.3
43	5.0	0
44	0	5.1
45	0	0
46	5.0	5.0
47	0	5.1
48	5.0	0
49	0	0

MODE PIN NO.	REC	PLAY
50	0	0
51	0	0
52	5.0	-
53	0	0
54	0	0
55	0	0
56	0	0
57	5.0	5.1
58	0	0
59	5.0	5.0
60	0	0
61	0	0
62	0	0
63	5.0	5.1
64	0	0
65	0	0
66	0	0
67	5.0	5.1
68	5.0	5.0
69	0	0
70	5.0	5.0
71	2.5	2.4
72	5.0	5.1
73	4.6	4.5
74	2.1	4.3
75	1.5	1.5
76	2.4	2.5
77	0	0
78	0	4.4
79	0	0
80	4.3	4.3
IC3302		
1	0	0
2	12.3	12.3
3	0.2	0.2
4	0	0
5	0	0
6	12.3	12.3
7	0	0
8	3.5	3.5
9	0	0
IC7201		
1	0	0
2	2.8	2.8
3	3.2	3.2
4	4.6	4.6
5	0	0
6	0	0
7	0	0
8	4.9	4.9
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	5.1	5.1
20	5.1	5.1
21	5.0	5.0
22	0.4	0.4
23	0.5	0.5
24	5.0	5.0
25	0.2	0.2
26	0.2	0.2
27	0.2	0.2
28	0.2	0.2
29	0	0
30	0	0.3
31	0.3	0.2
32	0.3	0.3
33	0	0
34	0	0
35	0.2	0.2
36	0.3	0.3
37	0.3	0.3
38	0.2	0.2
39	0.8	0.8
40	0.3	0.3
41	0.2	0.5
42	4.3	4.3
43	5.0	0
44	0	5.1
45	0	0
46	5.0	5.0
47	0	5.1
48	5.0	0
49	0	0

MODE PIN NO.	REC	PLAY
35	0	0
36	0	0
Q3001		
1	0	0
2	4.6	4.6
Q3002		
1	0	0
2	5.0	5.0
Q3003		
E	0	0
C	0	0
B	0.7	0.7
Q3005		
E	0	0
C	12.2	12.3
B	0	0
Q3006		
E	0	0
C	0	0
B	0	0
Q3301		
E	3.5	3.5
C	3.5	3.5
B	4.1	4.1
CN3001		
1	0	0
2	2.5	2.5
3	2.4	2.4
4	5.0	5.0
5	0	0
6	5.0	5.0
7	0	0
8	8.5	8.5
CN3003		
1	1.9	1.3
2	1.9	1.3
CN3004		
1	5.0	5.0
2	5.0	5.0
3	0	0
4	0	0
CN3005		
1	5.0	5.1
2	5.0	5.1
3	4.7	4.7
4	5.0	5.0
5	0	1.3
6	1.3	4.4
7	4.6	4.9
8	4.6	0
9	0	0
10	-20.9	-20.8
11	-17.2	-17.1
12	-29.7	-29.6
CN3301		
1	0	0
2	0	0
3	0	0
4	5.1	5.1
5	0	0

<SERVO>

MODE PIN NO.	REC	PLAY
IC4001		
1	0	0
2	0.4	0.2
3	2.3	2.3
4	0	0
5	3.1	0
6	5.0	-
7	1.5	1.5
8	2.9	2.9

MODE PIN NO.	REC	PLAY
9	5.0	5.0
10	2.5	2.5
11	2.5	2.5
12	2.5	2.5
13	1.7	2.5
14	2.8	2.5
15	2.5	2.5
16	0	0
17	2.4	2.4
18	0	0
19	0.5	0.5
20	0	-
21	-	-
22	1.6	1.6
23	5.0	5.0
24	4.7	4.7
Q4001		
E	0	0
C	0	0.4
B	4.5	0
Q4002		
E	-	-
C	-	-
B	-	-
CN4001		
1	12.1	12.2
2	0	0
3	1.5	1.5
4	1.5	1.5
CN4002		
1	0	0
2	2.6	2.6
3	2.6	2.6
4	5.1	5.1
5	2.6	2.6
6	2.5	2.5
7	0.5	0.5
8	0	0
9	2.5	2.5
10	2.9	2.9
11	3.1	3.1
12	2.4	2.4

<SW. REG>

MODE PIN NO.	REC	PLAY
Q5101		
S	0	0
D	302.1	302.4
G	3.5	3.4
Q5102		
E	0	0
C	3.5	3.4
B	0.1	0.1
Q5301		
E	20.7	20.7
C	11.4	11.4
B	20.6	20.6
Q5302		
E	0	0
C	20.2	20.9
B	0	0
Q5304		
E	0	0
C	0	0
B	4.6	4.5
Q5305		
E	0	0
C	11.0	11.0
B	0.5	0.6
Q5306		
E	5.2	5.2
C	6.0	6.0
B	5.8	5.8

MODE PIN NO.	REC	PLAY
Q5315		
E	5.2	5.1
C	5.9	5.9
B	5.8	5.8
Q5316		
E	0	0
C	5.8	5.8
B	0.6	0.6
Q5317		
E	5.2	5.2
C	5.9	5.9
B	5.8	5.8
Q5318		
E	0	0
C	5.8	5.8
B	0.6	0.5
Q5320		
E	12.2	12.2
C	12.2	12.2
B	0	0
Q5322		
E	11.6	11.6
C	12.2	12.2
B	12.2	12.2
Q5323		
E	11.5	11.5
C	12.2	12.2
B	12.0	12.1
Q5451		
E	11.4	11.4
C	8.5	8.5
B	11.4	11.4
Q5452		
E	0	0
C	11.4	11.4
B	0.4	0.4

MODE PIN NO.	REC	PLAY
50	-	-
51	-	-
52	-	-
53	-	-
54	-	-
55	-	-
56	-	-
57	-	-
58	-	-
59	-	-
60	-	-
61	-	-
62	-	-
63	-	-
64	-	-
65	-	-
66	-	-
67	-	-
68	-	-
69	-	-
70	-	-
71	-	-
72	-	-
73	-	-
74	-	-
75	-	-
76	-	-
77	-	-
78	-	-
79	-	-
80	-	-
81	-	-
82	-	-
83	-	-
84	-	-
85	-	-
86	-	-
87	-	-
88	-	-
89	-	-
90	-	-
91	-	-
92	-	-
93	-	-
94	-	-
95	-	-
96	-	-
97	-	-
98	-	-
99	-	-
100	-	-
IC1402	-	-
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-

MODE PIN NO.	REC	PLAY
25	-	-
26	-	-
27	-	-
28	-	-
Q1004	-	-
E	-	-
C	-	-
B	-	-
Q1005	-	-
E	0	0
C	0	0
B	2.8	2.8
Q1006	-	-
E	4.1	4.1
C	0	0
B	3.5	3.5
Q1007	-	-
E	-	-
C	-	-
B	-	-
Q1010	-	-
E	0	0
C	0	0
B	0	0
Q1012	-	-
E	2.6	2.6
C	5.2	5.2
B	3.3	3.3
Q1014	-	-
E	0	0
C	1.3	1.3
B	0.6	0.6
Q1015	-	-
E	0.7	0.7
C	3.3	3.3
B	1.3	1.3
Q1016	-	-
E	-	-
C	-	-
B	-	-
Q1021	-	-
E	-	-
C	-	-
B	-	-
Q1022	-	-
E	0	0
C	0	0
B	0.3	4.1
Q1023	-	-
E	0	0
C	0	0
B	0	0
Q1401	-	-
E	-	-
C	-	-
B	-	-
Q1402	-	-
E	-	-
C	-	-
B	-	-
Q1403	-	-
E	-	-
C	-	-
B	-	-
Q1404	-	-
E	-	-
C	-	-
B	-	-
Q1405	-	-
E	-	-
C	-	-
B	-	-
Q1406	-	-
E	-	-
C	-	-
B	-	-

MODE PIN NO.	REC	PLAY
Q1407	-	-
E	-	-
C	-	-
B	-	-
Q1408	-	-
E	-	-
C	-	-
B	-	-
Q1409	-	-
E	-	-
C	-	-
B	-	-
Q1410	-	-
E	-	-
C	-	-
B	-	-
Q1411	-	-
E	-	-
C	-	-
B	-	-
Q1412	-	-
E	-	-
C	-	-
B	-	-
Q1413	-	-
E	-	-
C	-	-
B	-	-
Q1414	-	-
E	-	-
C	-	-
B	-	-
Q1416	-	-
E	-	-
C	-	-
B	-	-
Q1417	-	-
E	-	-
C	-	-
B	-	-
Q1418	-	-
E	-	-
C	-	-
B	-	-
CN1003	-	-
1	2.1	2.1
2	0	0
3	2.3	2.3
4	0	0
5	5.7	5.8
6	0	0
7	5.7	5.7

<DEMODULATOR> (HR-S9500EH)

MODE PIN NO.	REC	PLAY
IC6701	-	-
1	-	-
2	-	-
3	-	-
4	-	-
5	5.1	5.1
6	5.1	5.1
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	5.1	5.1
17	0	0

MODE PIN NO.	REC	PLAY
18	-	-
19	-	-
20	4.7	4.8
21	-	-
22	-	-
23	0	0
24	0	0
25	0	0
26	0	0
27	-	-
28	-	-
29	0	0
30	-	-
31	-	-
32	-	-
33	8.3	8.3
34	7.4	7.4
35	-	-
36	3.7	3.7
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	0	0
43	2.6	2.6
44	3.2	3.2
45	0	0
46	5.1	5.0
47	1.5	1.5
48	1.5	1.5
49	0	0
50	0	0
51	2.3	2.3
52	2.0	2.0
Q6701	-	-
E	8.3	8.3
C	11.3	11.4
B	8.9	8.9
Q6702	-	-
E	2.9	2.9
C	8.3	8.3
B	3.7	3.6
Q6704	-	-
E	0	0
C	0	0
B	3.0	3.0
Q6705	-	-
E	0	0
C	0	0
B	3.0	3.0
CN6701	-	-
1	-	-
2	-	-
3	0	0
4	5.1	5.1
5	11.3	11.3
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	4.1	4.1

<DEMODULATOR> (HR-S9500E)

MODE PIN NO.	REC	PLAY
IC6701	-	-
1	2.6	2.6
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-

MODE PIN NO.	REC	PLAY
7	2.3	2.2
8	2.4	2.4
9	2.1	2.1
10	2.3	2.2
11	2.6	2.7
12	4.4	4.4
13	0	0
14	5.1	5.1
15	2.6	2.6
16	-	-
IC6702	-	-
1	-	-
2	3.5	3.5
3	2.8	2.8
4	2.6	2.6
5	2.6	2.6
6	2.6	2.6
7	2.6	2.6
8	2.6	2.6
9	-	-
10	-	-
11	-	-
12	-	-
13	2.5	2.6
14	2.6	2.6
15	2.5	2.5
16	0	0
17	2.6	2.6
18	5.1	5.1
19	3.3	3.3
20	-	-
Q6701	-	-
E	0	0
C	0	0
B	3.9	3.9
Q6702	-	-
E	0	0
C	0	0
B	3.9	3.9
CN6701	-	-
1	-	-
2	-	-
3	0	0
4	5.1	5.1
5	11.3	11.4
6	0	0
7	0	0
8	0	0
9	0	0
10	3.0	3.0
11	4.6	4.6

<TERMINAL>

MODE PIN NO.	REC	PLAY
IC7131	-	-
1	1.6	1.6
2	0	0
3	1.6	1.6
4	11.5	11.5
5	2.0	2.0
6	0	0
7	5.0	5.0
8	11.4	11.4
9	4.9	5.0
10	5.4	5.4
11	5.1	5.1
12	0	0
13	-	-
14	-	-
15	5.7	5.7
16	5.1	0
17	5.7	5.7
18	4.9	5.0

MODE PIN NO.	REC	PLAY
19	11.5	11.4
20	2.6	2.6
21	1.4	0
22	1.4	0
23	2.5	2.5
24	2.0	2.0
IC7132	-	-
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	11.5	11.5
9	6.5	6.5
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
IC7191	-	-
1	6.3	6.4
2	5.2	5.3
3	5.8	5.7
4	0	0
5	5.8	5.8
6	5.7	5.7
7	0	0
8	6.4	6.4
9	6.4	6.4
10	0	0
11	6.4	6.4
12	0	0
13	11.5	11.5
14	6.5	6.4
15	0	0
16	6.4	6.4
Q7131	-	-
E	2.4	2.4
C	0	0
B	1.7	1.8
Q7151	-	-
E	2.9	3.0
C	0	0
B	2.3	2.3
Q7152	-	-
E	5.6	5.6
C	0	0
B	5.0	5.0
Q7191	-	-
E	0	0
C	11.5	11.5
B	0.7	0.7
CN7151	-	-
1	2.1	2.1
2	0	0
3	2.3	2.3
4	0	0
5	5.7	5.8
6	0	0
7	5.7	5.7
CN7191	-	-
1	0	0
2	0	0
3	0	0
4	0	0

<ON SCREEN>

MODE PIN NO.	REC	PLAY
IC201	-	-
1	0	0
2	2.6	2.6

MODE PIN NO.	REC	PLAY
3	4.2	4.2
4	0	0
5	2.0	2.0
6	-	-
7	-	-
8	5.0	5.0
9	-	-
10	4.6	4.6
11	-	-
12	5.0	5.0
13	2.9	2.9
14	2.8	2.8
15	0	0
16	1.2	1.2
17	2.5	2.5
18	5.0	5.0
19	2.3	2.3
20	0	0
21	2.3	2.3
22	1.9	1.9
23	5.0	5.0
24	3.0	3.0
25	2.5	2.5
26	5.0	5.0
27	5.0	5.0
28	3.7	3.7
29	5.0	5.0
30	5.0	5.0

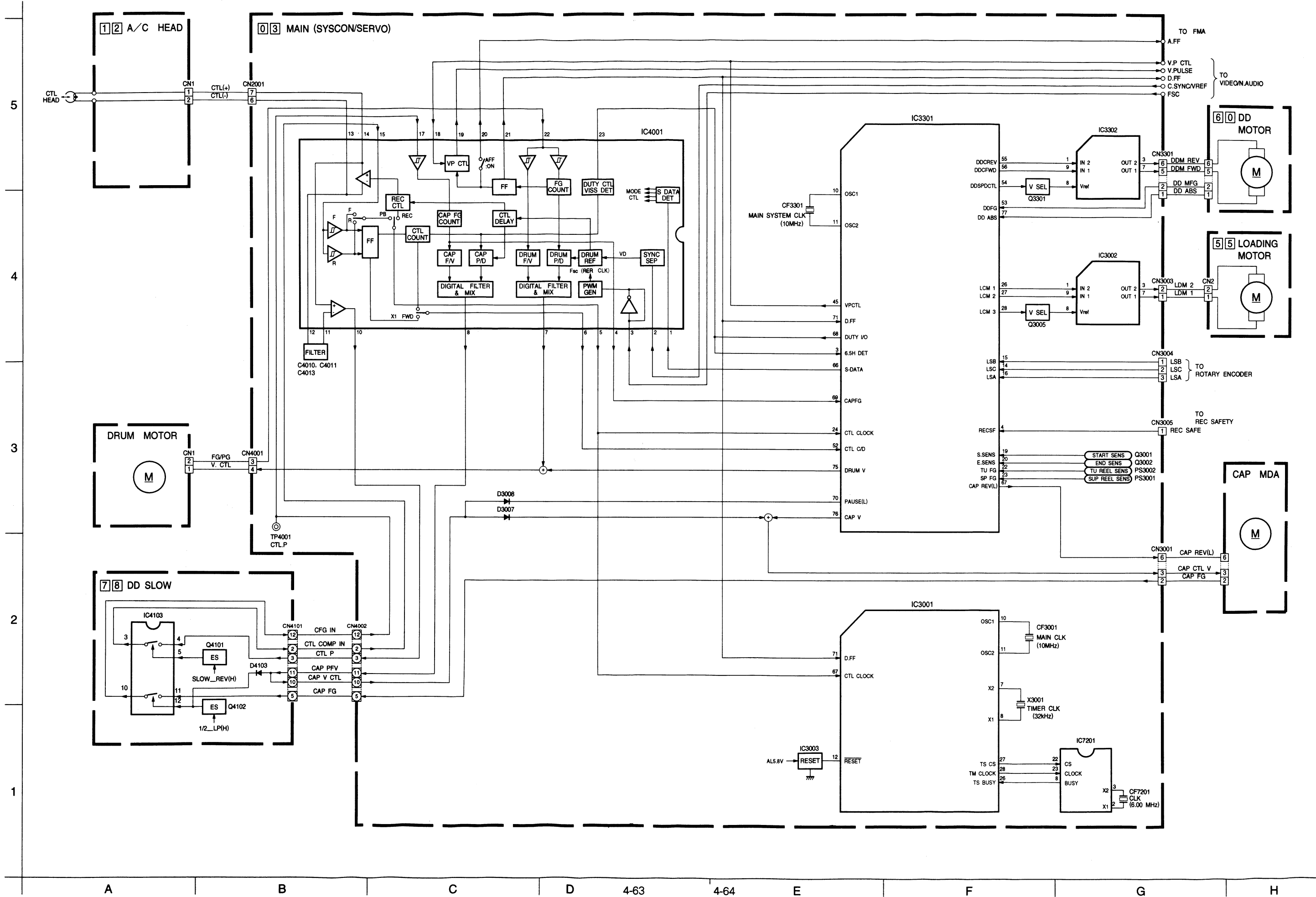
<SPATIALIZER>

MODE PIN NO.	REC	PLAY
IC2701		
1	4.5	4.5
2	4.5	4.5
3	4.5	4.5
4	4.4	4.4
5	4.5	4.5
6	4.5	4.5
7	4.5	4.5
8	0	0
9	4.5	4.5
10	0.6	0.6
11	0.4	0.4
12	9.0	9.0
13	0.6	0.6
14	0.3	0.3
15	0	0
16	4.6	4.6
17	2.9	2.9
18	8.2	8.2
19	0	0
20	0	0
Q2701		
E	9.1	9.1
C	11.4	11.4
B	9.7	9.7

<SW/DISPLAY>

MODE PIN NO.	REC	PLAY
IC7001		
1	5.1	5.1
2	2.2	2.2
3	0	0
4	2.1	2.2
5	5.1	5.1
6	4.1	4.1
7	5.1	5.1
8	5.1	5.1
9	5.1	5.1

4.31 SYSTEM CONTROL/SERVO BLOCK DIAGRAM



5



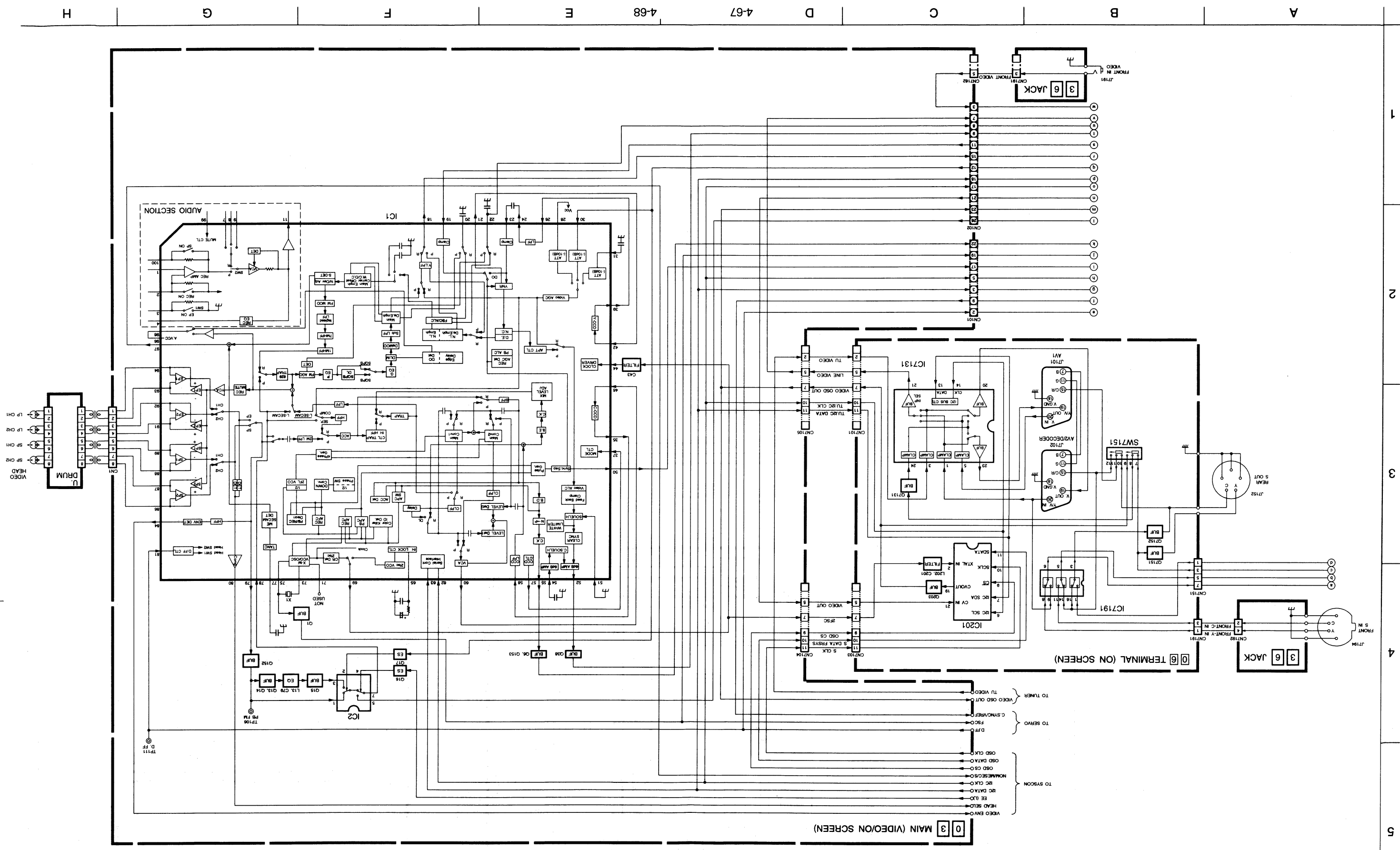
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4-65

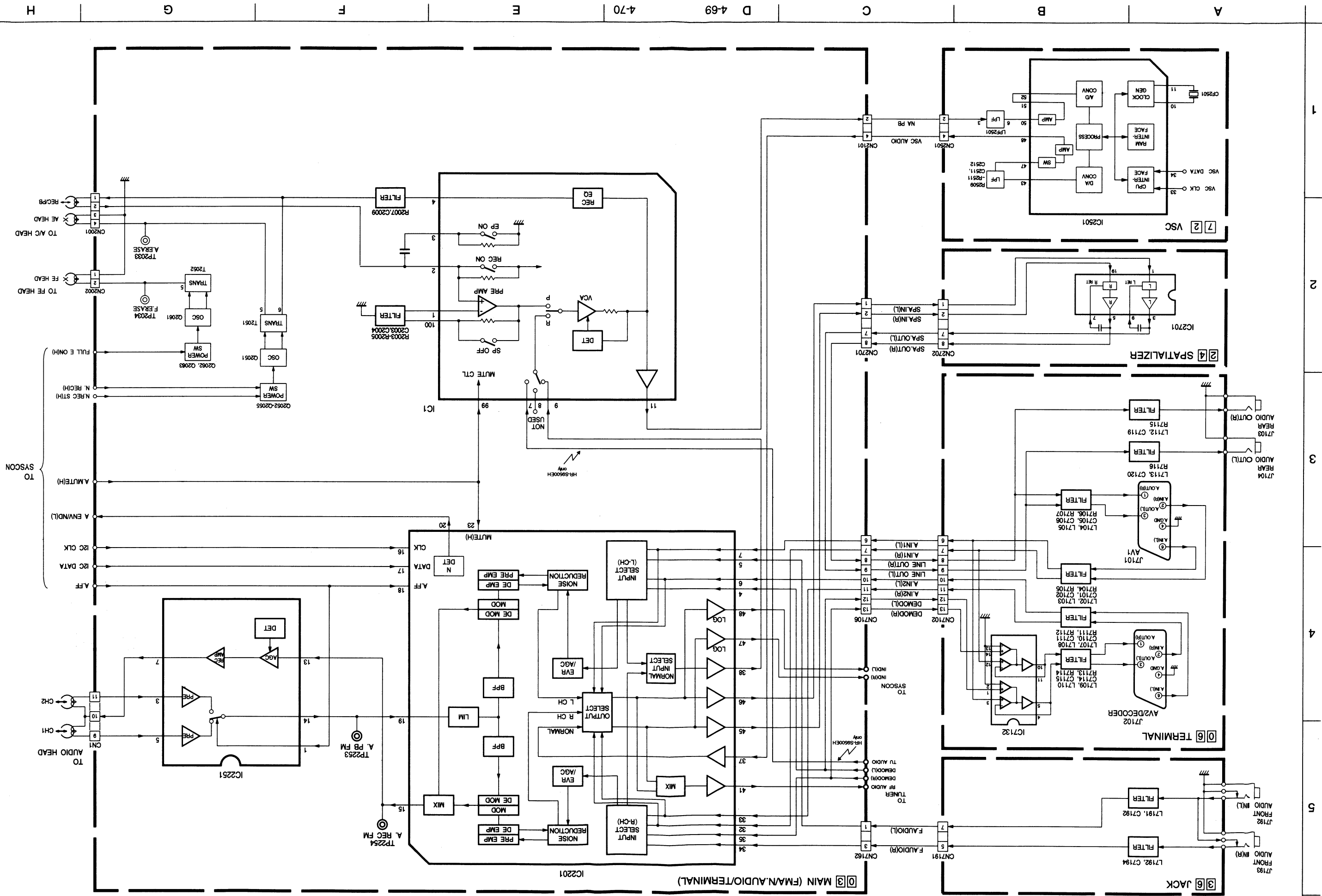
E

G

H



4.3.3 AUDIO BLOCK DIAGRAM



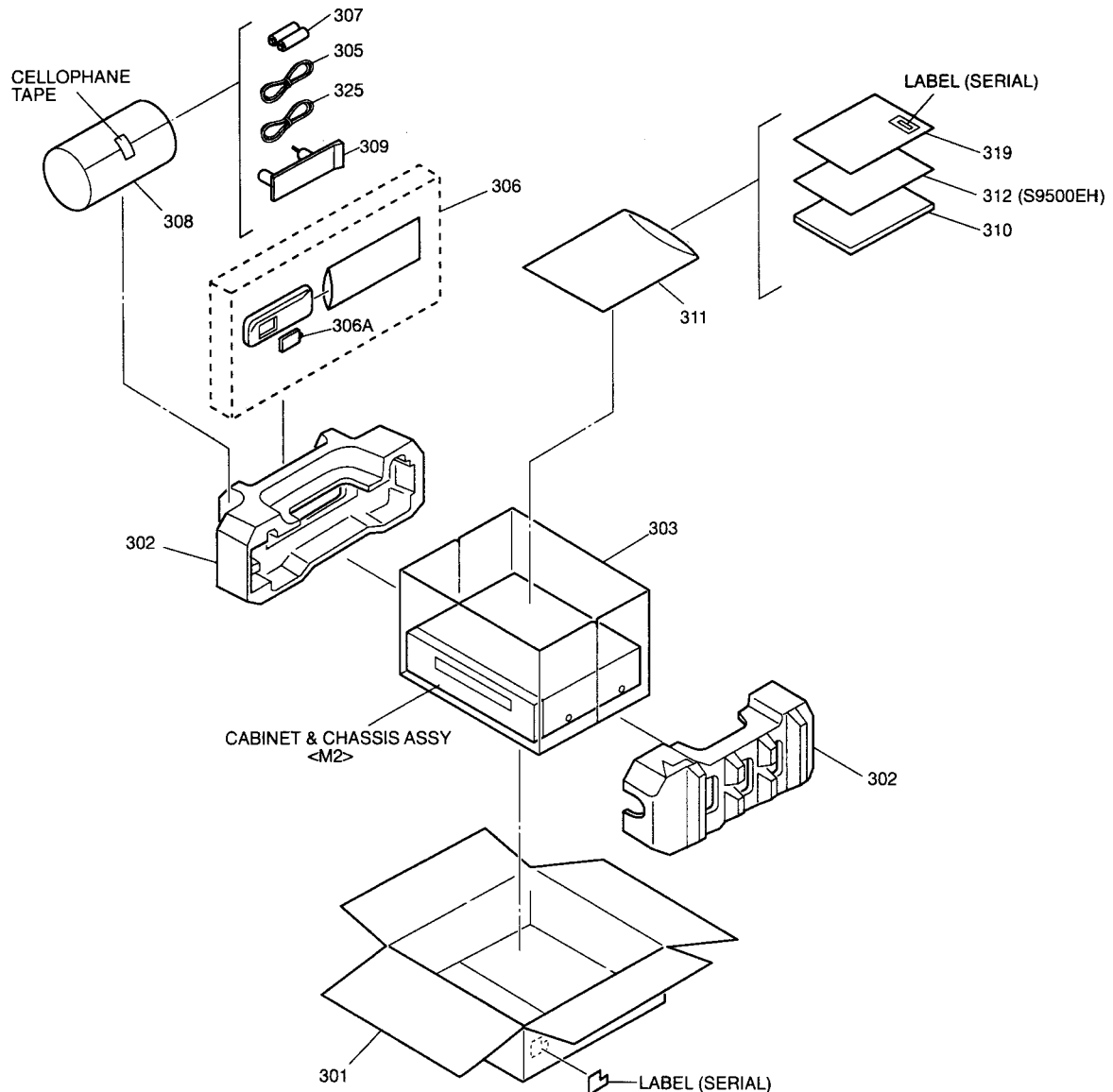
SECTION 5 PARTS LIST

SAFETY PRECAUTION

Parts identified by the $\triangle$ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.



$\triangle$ REF No. PART No. PART NAME, DESCRIPTION

PACKING AND ACCESSORY ASSEMBLY <M1>

301	LP30450-003A	PACKING CASE,S9500EH
	LP30450-005A	PACKING CASE,S9500E
302	LP30430-001A	CUSHION ASSY
303	PQM30021-95	POLY BAG
305	PEAC0300-02	RF CABLE
306	LP20465-003C	REMOTE CONTROLLER
306A	LP40254-005A	COVER(BATTERY)
307	-	BATTERY,X2(R6P TYPE)
308	QPC02202215P	POLY BAG
309	LP40164-002A	CAP,JACK(CONNECTOR COVER)
$\triangle$ 310	LPT0051-001B	INST.BOOK(EN)

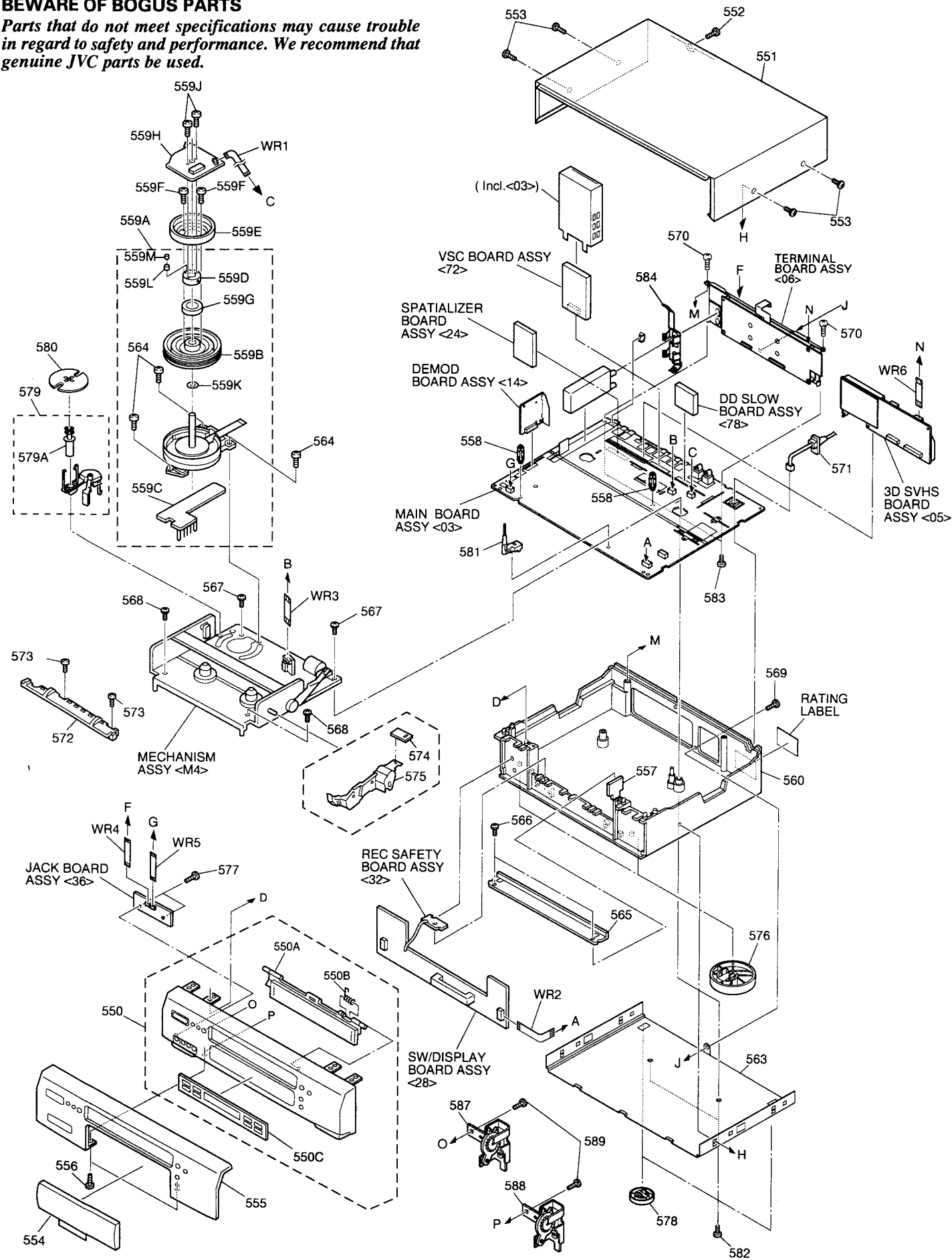
$\triangle$ REF No. PART No. PART NAME, DESCRIPTION

$\triangle$	LPT0051-002B	INST.BOOK(GE)
$\triangle$	LPT0051-003B	INST.BOOK(FR)
$\triangle$	LPT0051-004B	INST.BOOK(IT),S9500E
$\triangle$	LPT0051-005B	INST.BOOK(SP),S9500E
$\triangle$	LPT0051-006B	INST.BOOK(DU)
$\triangle$	LPT0051-007B	INST.BOOK(DA),S9500E
$\triangle$	LPT0051-008B	INST.BOOK(FI),S9500EH
$\triangle$	LPT0051-009B	INST.BOOK(SW),S9500EH
$\triangle$	LPT0051-010B	INST.BOOK(NO),S9500EH
$\triangle$	LPT0051-011B	INST.BOOK(PT),S9500EH
$\triangle$	LPT0051-012B	INST.BOOK(GR),S9500E
311	QPC02503515P	POLY BAG
312	PQ45146-148	SHEET(SPAIN),S9500EH
319	BT-54008-1	GUARANTEE CARD
325	PEAC0358-120	S CABLE

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

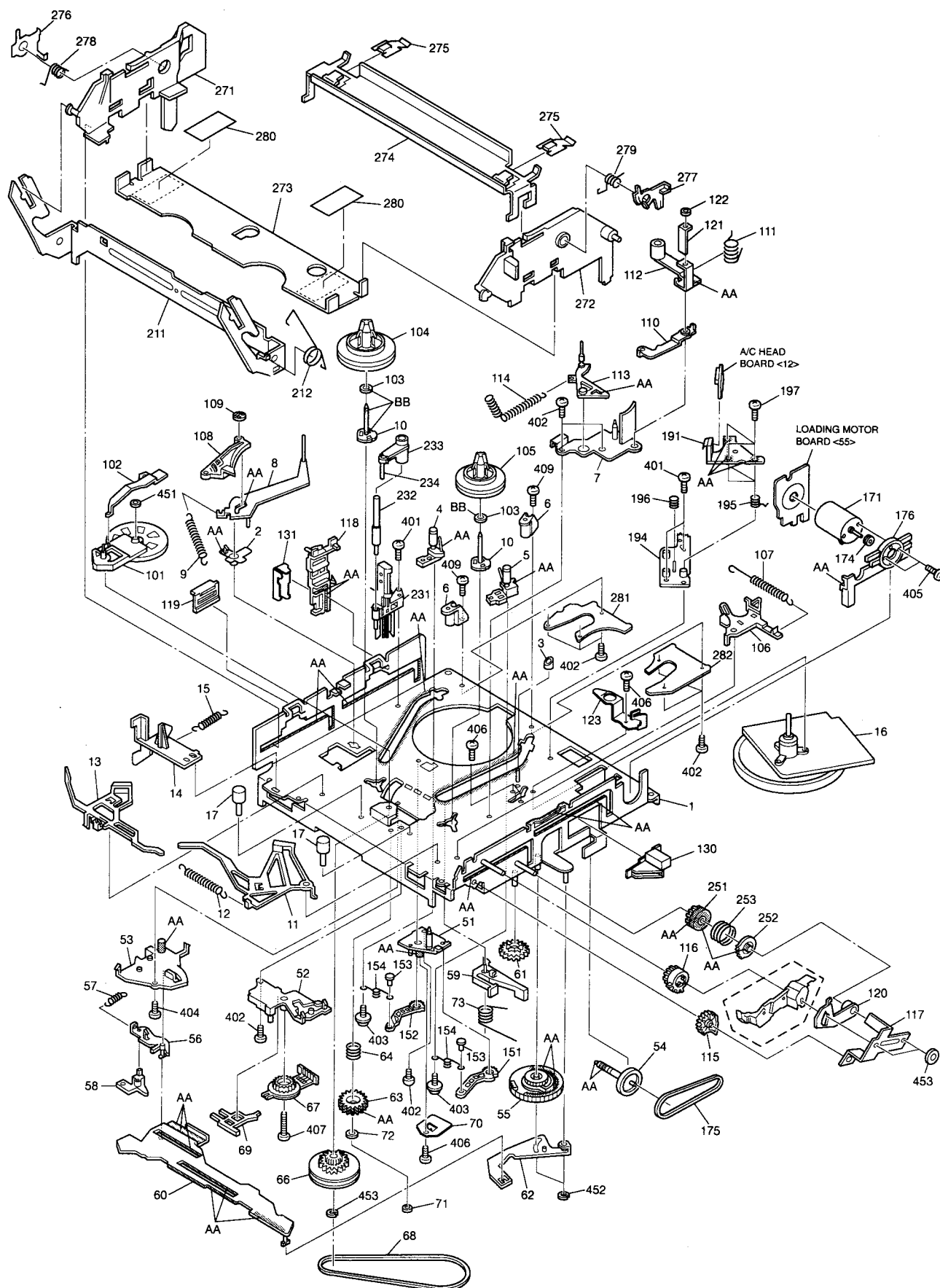
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



#	△	REF No.	PART No.	PART NAME, DESCRIPTION	#	△	REF No.	PART No.	PART NAME, DESCRIPTION

CABINET AND CHASSIS ASSEMBLY <M2>									
△		550	LP10088-004B	FRONT PANEL ASSY					
		550A	LP20249-005B	C.H.DOOR					
		550B	PQ46448	TORSION SPRING					
		550C	LP20250-003A	DISPLAY WINDOW					
△		551	PQ11922-16-3	TOP COVER					
		552	QYTDSF3010M	SCREW,TOP COVER(REAR)					
		553	QYTDSF3010R	SCREW,X4 TOP COVER(SIDE)					
		554	LP20255-002A	WINDOW(DOOR)					
		555	LP20315-003A	COVER(F.P)ASSY,S9500EH					
			LP20315-004A	COVER(F.P)ASSY,S9500E					
		556	QYTDSF2608Z	SCREW,X2 COVER(FRONT PANEL)					
		557	LP40441-001A	SPACER(MECHA)					
		558	LP40226-001A	PC SUPPORT,X2					
		559A	LP20319-004A	DRUM SUB ASSY					
		559B	LP20030-009A	UPPER DRUM ASSY					
		559C	LPA20002-01B	SENSOR BOARD ASSY					
		559D	LP40028-001A	COLLAR ASSY					
		559E	PDZ0179-2	ROTOR ASSY					
		559F	QYSPSP3006Z	SCREW,X2					
		559G	PDM4439	CAP					
		559H	PDZ0181-2-2	STATOR ASSY					
		559J	QYSPSP2606Z	SCREW,X2					
		559K	PDM4444-19-2	WASHER					
		559L	LP40323-001A	CONTACT					
		559M	LP30004-005A	COMPRES. SPRING					
△		560	LP10140-003A	BOTTOM CHASSIS					
△		563	PQ11921-1-3	BOTTOM COVER					
		564	QYTDST2610Z	SCREW,X3 DRUM					
		565	LP30312-001B	BRACKET(CHASSIS)					
		566	QYTDSF3010Z	SCREW,X2 BRACKET(CHASSIS)					
		567	QYTDSF4012Z	SCREW,X2 MECHA					
		568	QYTDSF3010Z	SCREW,X2 MECHA					
		569	QYTDSF3010M	SCREW,TERMINAL					
		570	QYTDSF3010Z	SCREW,X2 TERMINAL					
△		571	QMP4A10-170	POWER CORD					
		572	LP30247-001B	FRONT BRACKET					
		573	QYTDST2606Z	SCREW,X2 FRONT BRACKET					
		574	LP40451-001A	SPACER(OPENER)					
		575	LP20324-002C	DOOR OPENER					
		576	PQ46617A	FOOT ASS'Y					
		577	QYTDSF2608Z	SCREW,X2 JACK BOARD					
		578	PQ35504-2	FOOT(2),x2					
		579	LP40370-001B	ROLLER ARM ASSY					
		579A	PDM4311A-1	ROLLER ASS'Y					
		580	PQ45160	INERTIA PLATE					
		581	LP40407-001A	KNOB ASSY					
		582	QYTDSF3010Z	SCREW,X2 BOTTOM COVER					
		583	QYTDSF3008Z	SCREW,X2 TERMINAL					
		584	PQ21623-1-3	EARTH PLATE(RF)					
		587	LP40158-001B	DAMPER ASSY,C.H.DOOR					
		588	LP40158-002B	DAMPER ASSY,WINDOW(DOOR)					
		589	SDSF2608Z	SCREW,X2 DAMPER ASSY					
		WR1	QUQ212-0422CG	FFC WIRE,DRUM					
		WR2	QUQ112-1214CG	FFC WIRE,DISPLAY					
		WR3	WJT0005-002A	E-CARD WIRE,AC/HEAD					
		WR4	QUQ212-0446CG	FFC WIRE,S.JACK					
		WR5	QUQ212-0514CG	FFC WIRE,JACK					
		WR6	QUQ112-0708CG	FFC WIRE,TERMINAL					

5.3 MECHANISM ASSEMBLY <M4>



Classification	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

△ REF No. PART No. PART NAME, DESCRIPTION

MECHANISM ASSEMBLY <M4>

1	LP20228-003D	MAIN DECK ASSY
2	LP30232-002A	T.ARM BEARING
3	LP40097-001B	G.POLE CAP
4	LP40101-003A	P.BASE ASSY(S)
5	LP40104-002A	P.BASE ASSY(T)
6	LP30409-002A	UV CATCHER 2,X2
7	LP20234-001C	LID GUIDE
8	LP40108-001A	TENSION ARM ASSY
9	LP30003-010A	TENSION SPRING
10	LP40123-001A	REEL SHAFT,X2
11	LP40111-002B	MAIN BRAKE AY (TAKE-UP)
12	LP30003-002A	TENSION SPRING
13	LP40110-002D	MAIN BRAKE ASSY (SUPPLY)
14	LP30245-001C	REC SAFTY LEVER
15	LP30003-004A	TENSION SPRING
16	QAR0032-003	CAPSTAN MOTOR
17	PQ46302-1-3	ADJUST PIN,X2
51	LP30223-003B	L.A.GEAR SHAFT
52	LP20233-003B	R.ENCODER GUIDE
53	LP30226-003B	CTL.PLATE GUIDE
54	LP40120-001A	WORM GEAR
55	LP30229-001C	CTL.CAM
56	LP30249-003B	T.UP LEVER
57	LP30003-006A	TENSION SPRING
58	LP40119-002A	T.UP HEAD
59	LP40113-001A	C.BRAKE ASSY
60	LP10080-002F	CTL.PLATE
61	LP30237-002A	CASSETTE GEAR
62	LP40107-002A	LINK LEVER ASSY
63	LP40122-001B	DIRECT GEAR
64	LP40224-001B	COMPRESSION SPRING
66	LP40115-002C	CLUTCH UNIT
67	QSW0554-003	ROTARY ENCODER
68	LP30005-005A	BELT,CAPSTAN MOTOR
69	LP30235-002A	CHANGE LEVER
70	LP40379-001A	CTL BRACKET(1)
71	LP30016-001A	SLIT WASHER
72	LP30017-009A	SPACER,D.GEAR
73	LP40355-002A	TORSION SPRING
101	LP40114-002D	IDLER ARM ASSY
102	LP30236-002A	IDLER LEVER
103	LP30017-004A	SPACER,X2 REEL DISK
104	LP20237-001B	REEL DISK (SUPPLY)
105	LP20238-001B	REEL DISK (TAKE-UP)
106	LP40112-001E	S.BRAKE(T)ASSY
107	LP40357-001B	TENSION SPRING
108	LP40109-002C	T.BRAKE ASSY
109	PQ46302-1-3	ADJUST PIN
110	LP40149-001B	P.LEVER ASSY
111	LP40148-001A	TORSION SPRING
112	LP40105-001B	P.R.ARM ASSY
113	LP40106-001B	GUIDE ARM ASSY
114	LP40134-001B	TENSION SPRING
115	LP30243-001B	DRIVE GEAR
116	LP30242-001A	RELAY GEAR
117	LP40214-001A	C.H.BRACKET
118	LP30244-001C	GUIDE RAIL
119	LP40118-001A	RAIL CAP

△ REF No. PART No. PART NAME, DESCRIPTION

120	LP30339-001A	OPENER GUIDE
121	LP40382-001A	P.R. SHEET
122	LP30016-002A	SLIT WASHER,P.R.ARM
123	LP30482-001A	P.ROLLER GUIDE
130	LP30493-001A	START SENSOR CAP
131	LP40457-001A	END SENSOR SHEET2
151	LP40103-002A	L.ARM GEAR(T)
152	LP30224-001A	L.ARM GEAR(S)
153	LP40100-001A	PIN,L.ARM(T)
	LP40100-001A	PIN,L.ARM(S)
154	LP40099-001A	TORSION ARM,L.ARM GEAR(T)
	LP40099-001A	TORSION ARM,L.ARM GEAR(S)
171	QAR0023-001	LOADING MOTOR
174	PQ43546-1-2	MOTOR PULLEY
175	LP30005-003A	BELT,LOADING MOTOR
176	LP30230-001B	MOTOR GUIDE
191	QAH0010-003	AC HEAD
194	LP30228-001A	HEAD BASE
195	LP30004-012A	COMPRES. SPRING,X3
196	LP40236-001A	COMPRESSION SPRING
197	LP40213-002B	SPECIAL SCREW,X3
211	LP20240-001B	DRIVE ARM
212	LP40137-001A	TORSION SPRING
231	NAH0001-001	FULL ERASE HEAD
232	LP40098-001B	GUIDE POLE(S)
233	LP30459-001A	TENSION STUD BASE
234	LP40367-001A	TENSION STUD
251	LP30239-002E	LIMIT GEAR(1)
252	LP30240-002C	LIMIT GEAR(2)
253	LP40136-001D	TORSION SPRING
271	LP10081-001D	SIDE HOLDER(L)
272	LP40403-001C	S.HOLDER(R)ASSY
273	LP30257-001C	CASSETTE HOLDER
274	LP20241-001C	TOP PLATE
275	LP30258-001B	SPRING PLATE
276	LP30255-001G	LOCK LEVER(L)
277	LP30256-001E	LOCK LEVER(R)
278	LP40168-001A	TOR.SPRING(L)
279	LP40218-001B	TOR.SPRING(R)
280	LP30019-006C	PAD,X2
281	LP40275-001A	PLATE(S)
282	LP40276-001A	PLATE(T)
401	QYTDST2608Z	SCREW,FE HEAD
	QYTDST2608Z	SCREW,X2 HEAD BASE
402	QYTDST2606Z	SCREW,X6 PLATE(S.T)
	QYTDST2606Z	SCREW,L.A.GEAR SHAFT
	QYTDST2606Z	SCREW,R.ENCODER GUIDE
	QYTDST2606Z	SCREW,X2 LID GUIDE
403	QYSPSTG2606Z	SCREW,POLE BASE(S)
	QYSPSTG2606Z	SCREW,POLE BASE(T)
404	QYTPST2605Z	SCREW,C.P.GUIDE
405	QYTPSP3003Z	SCREW,X2 LOADING MOTOR
406	QYTDSE2608M	SCREW,CTL BRACKET(1)
	QYTDSE2608M	SCREW,X3 CAPSTAN MOTOR
407	QYTPST2620Z	SCREW,ROTARY ENCODER
409	QYTPST2606Z	SCREW,X2 UV CATCHER
451	LP30016-001A	SLIT WASHER,IDLER ARM
452	PQM30017-24	SLIT WASHER,GTL CAM
	PQM30017-24	SLIT WASHER,LINK LEVER
453	PQM30017-47	SLIT WASHER,CLUTCH
	PQM30017-47	SLIT WASHER,C.H.BRACKET

5.4 ELECTRICAL PARTS LIST

△ REF No.	PART No.	PART NAME, DESCRIPTION

MAIN BOARD ASSEMBLY <03>		
PW1	LPA10014-54C	MAIN BOARD ASSY,S9500EH
	LPA10014-55C	MAIN BOARD ASSY,S9500E
IC1	JCP8016-MSB	IC
IC2	MM1113XF	IC
IC2201	AN3665FB-A	IC
△ IC2251	AN3328S	IC
IC3001	HD6433929TB39F	QFP IC (MCU)
IC3002	TA7291S	IC
IC3003	S-80728AN-DR-X	IC
	or S-80828ANUP-W	IC
IC3004	M24C08-BN6	IC
	or AT24C08-10PC	IC
	or X24C08P	IC
	or 24LC08B/P	IC
IC3301	HD6433926TB42F	QFP IC (MCU)
IC3302	TA7291S	IC
IC4001	BU2885CS	IC
IC6080	BA15218F-XE	IC
IC7201	UPD754302GS100X	IC(μ C ROM)
Q1	2SA1576A/QR/-X	TRANSISTOR
Q2	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q6	2SB1218A/QR/-X	TRANSISTOR
	or 2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q13	2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
Q14	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q15	2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SA1576A/QR/-X	TRANSISTOR
Q16	UN511E	TRANSISTOR
	or RN2309	TRANSISTOR
	or DTA144WU	TRANSISTOR
Q17	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q18	UN521E	TRANSISTOR
	or RN1309	TRANSISTOR
	or DTC144WU	TRANSISTOR
Q38	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q47	2SK433/D/-W	JUNCTION FET
Q48	2SK433/D/-W	JUNCTION FET
Q102	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q152	2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SA1576A/QRS/-X	TRANSISTOR
Q153	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR

# △ REF No.	PART No.	PART NAME, DESCRIPTION
	or 2PC4081/R/-X	TRANSISTOR
Q401	2SA1576A/QR/-X	TRANSISTOR
Q402	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q403	UN521E	TRANSISTOR
	or RN1309	TRANSISTOR
	or DTC144WU	TRANSISTOR
Q404	2SA1576A/QR/-X	TRANSISTOR
Q405	2SA1576A/QR/-X	TRANSISTOR
Q2001	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q2002	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2003	DTA144WU	TRANSISTOR
	or RN2309	TRANSISTOR
	or UN511E	TRANSISTOR
Q2051	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2052	2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
Q2053	DTC144WU	TRANSISTOR
	or UN521E	TRANSISTOR
	or RN1309	TRANSISTOR
Q2054	2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
Q2055	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2061	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q2062	DTA114EU	TRANSISTOR
	or RN2302	TRANSISTOR
	or UN5111	TRANSISTOR
Q2063	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2102	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2251	DTA144WU	TRANSISTOR
	or RN2309	TRANSISTOR
	or UN511E	TRANSISTOR
Q2253	DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
	or UN521E	TRANSISTOR
Q2254	DTC114EU	TRANSISTOR
	or RN1302	TRANSISTOR
	or UN5211	TRANSISTOR
Q2255	DTA144WU	TRANSISTOR
	or RN2309	TRANSISTOR
	or UN511E	TRANSISTOR
Q2711	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
Q2712			2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
Q2713			DTA114EU	TRANSISTOR
			or RN2302	TRANSISTOR
			or UN5111	TRANSISTOR
Q2714			DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
Q3001			PTZ-NV16	PHOTO TRANSISTOR
			or PTZ-NV09	PHOTO TRANSISTOR
Q3002			PTZ-NV16	PHOTO TRANSISTOR
			or PTZ-NV09	PHOTO TRANSISTOR
Q3003			2SD1819A/QRS/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
Q3005			2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
Q3006			UN521E	TRANSISTOR
			or RN2309	TRANSISTOR
			or DTC144WU	TRANSISTOR
Q3301			2SD1819A/QRS/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
Q4001			DTC114EU	TRANSISTOR
			or RN1302	TRANSISTOR
			or UN5211	TRANSISTOR
Q4002			DTC114EU	TRANSISTOR
			or UN5211	TRANSISTOR
			or RN1302	TRANSISTOR
Q5101			2SK2632-CB14	POWER MOS FET
			or 2SK2666F04	FE TRANSISTOR
			or 2SK2129-LT	POWER MOS FET
			or 2SK2129	POWER MOS FET
			or 2SK2632	POWER MOS FET
Q5102			2SD2144S/UV/-T	TRANSISTOR
Q5301			2SB1256	TRANSISTOR
Q5302			UN5215	TRANSISTOR
			or DTC114TU	TRANSISTOR
Q5303			2SB1256	TRANSISTOR,S9500E
Q5304			UN5211	TRANSISTOR
			or RN1302	TRANSISTOR
			or DTC114EU	TRANSISTOR
Q5305			2SC1740S/RS/-T	TRANSISTOR
			or 2SC3199/YG/-T	TRANSISTOR
Q5306			2SD2144S/UVW/-T	TRANSISTOR
Q5312			2SA1745/6-7/-X	TRANSISTOR,S9500E
Q5313			UN5211	TRANSISTOR,S9500E
			or RN1302	TRANSISTOR,S9500E
			or DTC114EU	TRANSISTOR,S9500E
Q5314			2SA1576A/RS/-X	TRANSISTOR,S9500E
			or 2SB1218A/RS/-X	TRANSISTOR,S9500E
Q5315			2SD2061/F/	TRANSISTOR
Q5316			2SD1819A/RS/-X	TRANSISTOR
			or 2SC4081/RS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
Q5317			2SD2061/F/	TRANSISTOR
Q5318			2SD1819A/RS/-X	TRANSISTOR
			or 2SC4081/RS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
Q5320			UN5111	TRANSISTOR
			or RN2302	TRANSISTOR
			or DTA114EU	TRANSISTOR
Q5321			UN5111	TRANSISTOR,S9500E
			or RN2302	TRANSISTOR
			or DTA114EU	TRANSISTOR
Q5322			2SD1450/ST/-T	TRANSISTOR
			or 2SD1302/ST/-T	TRANSISTOR
Q5323			2SD2375/QP/	TRANSISTOR
Q5451			2SB927/ST/-T	TRANSISTOR
Q5452			DTC144EU	TRANSISTOR
Q6001			2SC3068	TRANSISTOR
Q6030			2SB1218A/RS/-X	TRANSISTOR
			or 2SA1576A/RS/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
Q6031			DTC114EU	TRANSISTOR
			or RN1302	TRANSISTOR
			or UN5211	TRANSISTOR
D2001			1N4148M	DIODE
			or 1SS133	DIODE
D2201			11ES2	DIODE
D2253			DAP202U	DIODE
D3001			LNB2301L01VI	LE DIODE
D3002			11ES2	DIODE
D3003			11ES2	DIODE
D3005			RD39ES/B3/-T2	ZENER DIODE
			or MTZJ39C	ZENER DIODE
			or UZ39BSC	ZENER DIODE
D3007			1SS133	DIODE
			or 1N4148M	DIODE
D3008			1SS133	DIODE
			or 1N4148M	DIODE
D3009			1SS133	DIODE
			or 1N4148M	DIODE
D3013			1SS133	DIODE
			or 1N4148M	DIODE
D3014			1SS133	DIODE
			or 1N4148M	DIODE
D5001			S1WB(A)60F4102	BRIDGE DIODE
			or S1WB(A)60F4072X	BRIDGE DIODE
			or S1WB(A)60F4062X	BRIDGE DIODE
D5101			AU01	FR DIODE
			or PG104RS	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or ERA18-04-T2	FR DIODE
			or 10ELS4	FR DIODE
D5102			AU01	FR DIODE
			or ERA18-04-T2	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or 10ELS4	FR DIODE
			or PG104RS	FR DIODE
D5103			1N4148M	DIODE
			or 1SS133	DIODE
D5105			1SS133	DIODE,S9500E
D5201			ERA18-02-T2	FR DIODE
			or 1SR153-400-T2	FR DIODE
D5202			FML-12S	FR DIODE
			or FCF06A20	FR DIODE
			or MA644	FR DIODE
			or YG901C2	FR DIODE
D5206			FMB-24	BARRIER DIODE

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	#	△ REF No.	PART No.	PART NAME, DESCRIPTION
		or F5KQ40B	BARRIER DIODE	R16		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		or YG801C04	SB DIODE	R17		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		or MA7D49	SB DIODE	R18		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
D5209		10ELS2	FR DIODE	R19		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		or 1SR153-400-T2	FR DIODE	R24		NRVA02D-622X	CMF RESISTOR 6.2kΩ,1/10W
		or ERA18-02-T2	FR DIODE	R25		NRVA02D-152X	CMF RESISTOR 1.5kΩ,1/10W
		or PG104RS	FR DIODE	R46		NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
D5210		AU01Z	FR DIODE	R47		NRSA02J-562X	MG RESISTOR 5.6kΩ,1/10W
		or ERA18-02-T2	FR DIODE	R48		NRSA02J-221X	MG RESISTOR 220Ω,1/10W
		or PG104RS	FR DIODE	R49		NRSA02J-221X	MG RESISTOR 220Ω,1/10W
		or 10ELS2	FR DIODE	R50		NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		or 1SR153-400-T2	FR DIODE	R52		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
D5211		AU01Z	FR DIODE	R54		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		or PG104RS	FR DIODE	R55		NRSA02J-122X	MG RESISTOR 1.2kΩ,1/10W
		or 10ELS2	FR DIODE	R56		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		or ERA18-02-T2	FR DIODE	R57		NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		or 1SR153-400-T2	FR DIODE	R62		NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
D5301		UZ15BSA	ZENER DIODE	R63		NRSA02J-682X	MG RESISTOR 6.8kΩ,1/10W
		or MTZJ15A	ZENER DIODE	R68		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		or RD15ES/B1/-T2	ZENER DIODE	R69		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
D5302		11ES2	DIODE	R71		NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W
		or ERA15-02-T2	DIODE	R72		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
D5303		UZ12BSC	ZENER DIODE	R73		NRSA02J-473X	MG RESISTOR 47kΩ,1/10W
		or RD12ES/B3/-T2	ZENER DIODE	R94		NRSA02J-222X	MG RESISTOR 2.2kΩ,1/10W
		or MTZJ12C	ZENER DIODE	R120		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
D5304		1N4148M	DIODE	R121		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		or 1SS133	DIODE	R122		NRSA02J-101X	MG RESISTOR 100Ω,1/10W
D5305		UZ30BSA	ZENER DIODE	R123		NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		or RD30ES/B1/-T2	ZENER DIODE	R133		NRSA02J-222X	MG RESISTOR 2.2kΩ,1/10W
		or MTZJ30A	ZENER DIODE	R137		NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
D5307		UZ6.2BSC	ZENER DIODE	R138		NRSA02J-392X	MG RESISTOR 3.9kΩ,1/10W
		or RD6.2ES/B3/-T2	ZENER DIODE	R143		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
		or MTZJ6.2C	ZENER DIODE	R158		NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
D5308		1SS133	DIODE,S9500E	R168		NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
D5311		RD5.1JS/B2/-T2	ZENER DIODE	R169		NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
		or MA4051N/M/-T2	ZENER DIODE	R192		NRSA02J-106X	RESISTOR 10MΩ,1/10W
D5312		1N4148M	DIODE	R193		NRSA02J-475X	MG RESISTOR 4.7MΩ,1/10W
		or 1SS133	DIODE	R401		NRSA02J-473X	MG RESISTOR 47kΩ,1/10W
D5313		RD5.1JS/B2/-T2	ZENER DIODE	R402		NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W
D5314		1SS133	DIODE	R403		NRSA02J-393X	MG RESISTOR 39kΩ,1/10W
D5321		DAN202U	DIODE,S9500E	R404		NRSA02J-683X	MG RESISTOR 68kΩ,1/10W
D5351		11E2-T5	DIODE	R405		NRSA02J-473X	MG RESISTOR 47kΩ,1/10W
D5352		11E2-T5	DIODE	R408		NRSA02J-561X	MG RESISTOR 560Ω,1/10W
D5353		11E2-T5	DIODE	R409		NRSA02J-681X	MG RESISTOR 680Ω,1/10W
D5354		11E2-T5	DIODE	R410		NRSA02J-221X	MG RESISTOR 220Ω,1/10W
D6001		MTZJ10B	ZENER DIODE	R2001		NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
D6002		HZ30-2L-T2	ZENER DIODE	R2002		NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
		or HZ30-2LTD	Z DIODE (M)	R2003		NRSA02J-682X	MG RESISTOR 6.8kΩ,1/10W
R1		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W	R2004		NRSA02J-224X	MG RESISTOR 220kΩ,1/10W
R2		NRSA02J-561X	MG RESISTOR 560Ω,1/10W	R2005		NRSA02J-181X	MG RESISTOR 180Ω,1/10W
R3		NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W	R2006		NRSA02J-273X	MG RESISTOR 27kΩ,1/10W
R4		NRSA02J-822X	MG RESISTOR 8.2kΩ,1/10W	R2007		NRSA02J-223X	MG RESISTOR 22kΩ,1/10W
R5		NRSA02J-103X	MG RESISTOR 10kΩ,1/10W	R2009		NRSA02J-101X	MG RESISTOR,S9500EH 100Ω,1/10W
R6		NRSA02J-681X	MG RESISTOR 680Ω,1/10W	R2013		NRSA02J-101X	MG RESISTOR 100Ω,1/10W
R7		NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W	R2016		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
R9		NRSA02J-333X	MG RESISTOR 33kΩ,1/10W	R2018		NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W
R10		NRSA02J-102X	MG RESISTOR 1kΩ,1/10W	R2019		NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W
R11		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W	R2053		NRSA02J-562X	MG RESISTOR 5.6kΩ,1/10W
R13		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W	R2054		NRSA02J-153X	MG RESISTOR 15kΩ,1/10W
R14		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W	R2055		NRSA02J-3R3X	MG RESISTOR 3.3Ω,1/10W
R15		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W	R2056		QRE141J-101Y	RESISTOR 100Ω,1/4W

#	△	REF No.	PART No.	PART NAME, DESCRIPTION	#	△	REF No.	PART No.	PART NAME, DESCRIPTION
R2057			NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W	R3018			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2058			NRSA02J-183X	MG RESISTOR 18kΩ, 1/10W	R3019			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2059			NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W	R3020			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2060			NRSA02J-183X	MG RESISTOR 18kΩ, 1/10W	R3021			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2061			NRSA02J-273X	MG RESISTOR 27kΩ, 1/10W	R3022			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2062			NRSA02J-3R3X	MG RESISTOR 3.3Ω, 1/10W	R3023			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2063			NRSA02J-151X	MG RESISTOR 150Ω, 1/10W	R3024			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2101			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W	R3025			NRSA02J-221X	MG RESISTOR 220Ω, 1/10W
R2102			NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W	R3031			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R2105			NRSA02J-331X	MG RESISTOR 330Ω, 1/10W	R3032			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R2201			NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W	R3033			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R2202			NRSA02J-333X	MG RESISTOR 33kΩ, 1/10W	R3034			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R2203			NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W	R3035			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R2204			NRSA02J-393X	MG RESISTOR 39kΩ, 1/10W	R3036			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R2205			NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W	R3037			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R2206			NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W	R3038			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R2207			NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W	R3039			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2208			NRSA02J-183X	MG RESISTOR 18kΩ, 1/10W	R3040			NRSA02J-152X	MG RESISTOR 1.5kΩ, 1/10W
R2209			NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W	R3041			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2210			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	R3042			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2211			NRSA02J-511X	MG RESISTOR 510Ω, 1/10W	R3043			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2213			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	R3044			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2214			NRSA02J-511X	MG RESISTOR 510Ω, 1/10W	R3045			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2215			NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W	R3046			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2216			NRSA02J-183X	MG RESISTOR 18kΩ, 1/10W	R3047			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2217			NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W	R3048			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2218			NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W	R3049			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2219			NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W	R3050			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2220			NRSA02J-393X	MG RESISTOR 39kΩ, 1/10W	R3051			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2221			NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W	R3052			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2222			NRSA02J-333X	MG RESISTOR 33kΩ, 1/10W	R3053			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2223			NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W	R3054			NRSA02J-272X	MG RESISTOR 2.7kΩ, 1/10W
R2224			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W	R3055			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2225			NRSA02J-221X	MG RESISTOR 220Ω, 1/10W	R3056			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2226			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W	R3057			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
R2228			NRSA02J-221X	MG RESISTOR 220Ω, 1/10W	R3058			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2229			NRSA02J-221X	MG RESISTOR 220Ω, 1/10W	R3059			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
R2232			NRSA02J-123X	MG RESISTOR 12kΩ, 1/10W	R3060			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2233			NRSA02J-823X	MG RESISTOR 82kΩ, 1/10W	R3061			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2251			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	R3062			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2253			NRSA02J-270X	MG RESISTOR 27Ω, 1/10W	R3064			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2254			NRSA02J-220X	MG RESISTOR 22Ω, 1/10W	R3067			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2256			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W	R3068			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R2257			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	R3069			NRSA02J-271X	MG RESISTOR 270Ω, 1/10W
R2258			NRSA02J-221X	MG RESISTOR 220Ω, 1/10W	R3070			NRSA02J-271X	MG RESISTOR 270Ω, 1/10W
R2259			NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W	R3071			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2711			NRSA02J-221X	MG RESISTOR 220Ω, 1/10W	R3073			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2712			NRSA02J-221X	MG RESISTOR 220Ω, 1/10W	R3074			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2713			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	R3075			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2714			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	R3076			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2715			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	R3077			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R2716			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	R3078			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R3001			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	R3079			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R3002			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	R3080			NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W
R3003			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	R3201			NRSA02J-104X	MG RESISTOR 100kΩ, 1/10W
R3004			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W	R3203			NRSA02J-562X	MG RESISTOR 5.6kΩ, 1/10W
R3010			NRSA02J-105X	MG RESISTOR 1MΩ, 1/10W	R3204			NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W
R3014			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W	R3205			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3015			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	R3206			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W
R3016			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	R3207			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R3017			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	R3209			QRE141J-181Y	RESISTOR 180Ω, 1/4W

△ REF No.	PART No.	PART NAME, DESCRIPTION		# △ REF No.	PART No.	PART NAME, DESCRIPTION	
R3210	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	R3347	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3211	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	R3348	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3212	NRSA02J-181X	MG RESISTOR	180Ω,1/10W	R3349	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3213	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	R3350	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3214	NRSA02J-181X	MG RESISTOR	180Ω,1/10W	R3351	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3215	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W	R3352	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3220	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	R3353	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3223	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R3354	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3224	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R3355	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R3225	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W	R3356	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R3226	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	R3357	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3227	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W	R3358	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3228	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W	R3359	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3229	NRSA02J-334X	MG RESISTOR	330kΩ,1/10W	R3360	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3230	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	R3361	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3231	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R3362	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3232	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R3364	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3233	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	R3365	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3234	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	R3366	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3235	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	R3367	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3236	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	R3368	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3237	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	R3369	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3238	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	R3370	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3239	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	R3371	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3240	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	R3373	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3241	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	R3374	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3242	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	R3375	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3243	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	R3376	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3246	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R3377	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3250	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	R3378	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3252	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	R3379	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3255	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	R3380	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3256	NRSA02J-391X	MG RESISTOR	390Ω,1/10W	R3501	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3257	NRSA02J-391X	MG RESISTOR	390Ω,1/10W	R3502	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3258	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	R3503	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3259	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W	R3504	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3260	NRSA02J-103X	RESISTOR	10kΩ,1/10W	R3505	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3301	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	R3506	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3302	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	R3508	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3303	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R3510	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3304	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R3511	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
R3310	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W	R3512	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
R3314	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R3513	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
R3315	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R3514	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
R3316	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R3515	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
R3317	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	R3516	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R3318	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	R4001	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3319	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R4003	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
R3320	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R4005	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3321	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	R4007	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
R3322	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R4008	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
R3323	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R4009	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
R3324	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R4011	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3325	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	R4012	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3326	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	R4013	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3327	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	R4015	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3331	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	R5101	QRE141J-334Y	RESISTOR	330kΩ,1/4W
R3343	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	R5102	QRE141J-334Y	RESISTOR	330kΩ,1/4W
R3344	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	R5103	QRE141J-683Y	RESISTOR	68kΩ,1/4W
R3345	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	R5104	QRG029J-154G	OMF RESISTOR	150kΩ,2W
R3346	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	R5106	QRT01DJ-R39X	MF RESISTOR	0.39Ω,1W

#	△	REF No.	PART No.	PART NAME, DESCRIPTION	#	△	REF No.	PART No.	PART NAME, DESCRIPTION
R5107			QRE121J-331Y	RESISTOR 330Ω, 1/2W	R6071			NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R5108			NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W	R6084			NRSA02J-682X	MG RESISTOR 6.8kΩ, 1/10W
R5109			NRSA02J-681X	MG RESISTOR 680Ω, 1/10W	R6085			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W
R5110			NRSA02J-224X	MG RESISTOR 220kΩ, 1/10W	R7168			NRSA02J-750X	MG RESISTOR 75Ω, 1/10W
R5111			NRSA02J-821X	MG RESISTOR 820Ω, 1/10W	R7201			NRSA02J-105X	MG RESISTOR 1MΩ, 1/10W
R5112			QRE141J-221Y	RESISTOR, S9500E 220Ω, 1/4W	R7221			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W
R5301			NRSA02J-3R3X	MG RESISTOR 3.3Ω, 1/10W	R7236			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W
R5302			NRSA02J-3R3X	MG RESISTOR 3.3Ω, 1/10W	R7241			NRSA02J-103X	RESISTOR 10kΩ, 1/10W
R5303			NRSA02J-3R3X	MG RESISTOR 3.3Ω, 1/10W	VR2251			QVPA606-102Z	V RESISTOR, FMA REC FM
R5304			NRSA02J-3R9X	MG RESISTOR 3.9Ω, 1/10W	C1			QEKJ1CM-106	E CAPACITOR 10μF, 16V
R5305			QRE141J-102Y	RESISTOR, S9500E 1kΩ, 1/4W	C3			NCF21CZ-105X	CAPACITOR 1μF, 16V
R5307			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W	C5			NCF21CZ-105X	CAPACITOR 1μF, 16V
R5308			NRSA02J-472X	MG RESISTOR 4.7kΩ, 1/10W	C6			NCB11EK-104X	CAPACITOR 0.1μF, 25V
R5309			NRSA02J-222X	MG RESISTOR 2.2kΩ, 1/10W	C7			QEKJ0JM-107	E CAPACITOR 100μF, 6.3V
R5310			NRSA02J-472X	MG RESISTOR, S9500E 4.7kΩ, 1/10W	C9			NCF21CZ-105X	CAPACITOR 1μF, 16V
R5311			NRSA02J-222X	MG RESISTOR, S9500E 2.2kΩ, 1/10W	C11			NCF21CZ-105X	CAPACITOR 1μF, 16V
R5312			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W	C12			NCB21EK-104X	CAPACITOR 0.1μF, 25V
R5313			NRSA02J-122X	MG RESISTOR 1.2kΩ, 1/10W	C13			QEKJ1HM-335	E CAPACITOR 3.3μF, 50V
△ R5314			QRZ9005-470X	FUSI RESISTOR 47Ω, 1/4W	C14			NCB21EK-333X	CAPACITOR 0.033μF, 25V
R5315			NRSA02J-122X	MG RESISTOR 1.2kΩ, 1/10W	C16			NCF21CZ-105X	CAPACITOR 1μF, 16V
R5316			QRA14CF-2211Y	CMF RESISTOR 2.21kΩ, 1/4W	C20			NCF21CZ-225X	CAPACITOR 2.2μF, 16V
R5317			QRA14CF-3481Y	CMF RESISTOR 3.48kΩ, 1/4W	C21			NCB21CK-563X	CAPACITOR 0.056μF, 16V
R5319			QRE141J-511Y	RESISTOR 510Ω, 1/4W	C23			NCB21HK-223X	CAPACITOR 0.022μF, 50V
R5320			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W	C24			NCB21CK-474X	CAPACITOR 0.47μF, 16V
R5328			QRE141J-331Y	RESISTOR 330Ω, 1/4W	C25			NCB21CK-104X	CAPACITOR 0.1μF, 16V
R5330			NRSA02J-561X	MG RESISTOR 560Ω, 1/10W	C27			NDC21HJ-101X	CAPACITOR 100pF, 50V
R5331			NRSA02J-561X	MG RESISTOR 560Ω, 1/10W	C29			NBE20JM-475X	T CAPACITOR 4.7μF, 6.3V
R5332			NRSA02J-561X	MG RESISTOR 560Ω, 1/10W	C30			NBE20JM-475X	T CAPACITOR 4.7μF, 6.3V
R5335			NRSA02J-472X	MG RESISTOR, S9500E 4.7kΩ, 1/10W	C31			NCB21HK-223X	CAPACITOR 0.022μF, 50V
R5336			NRSA02J-222X	MG RESISTOR, S9500E 2.2kΩ, 1/10W	C32			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R5337			NRSA02J-222X	MG RESISTOR, S9500E 2.2kΩ, 1/10W	C34			NCB21EK-473X	CAPACITOR 0.047μF, 25V
R5338			NRSA02J-273X	MG RESISTOR, S9500E 27kΩ, 1/10W	C37			QEKJ0JM-476	E CAPACITOR 47μF, 6.3V
R5339			NRSA02J-273X	MG RESISTOR, S9500E 27kΩ, 1/10W	C41			NCB21EK-104X	CAPACITOR 0.1μF, 25V
R5340			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W	C42			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R5341			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W	C43			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R5342			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W	C44			NDC21HJ-101X	CAPACITOR, S9500E 100pF, 50V
R5343			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W	C45			NCB21EK-104X	CAPACITOR 0.1μF, 25V
R5344			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W	C46			NDC21HJ-101X	CAPACITOR 100pF, 50V
R5345			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W	C47			NCB21EK-104X	CAPACITOR 0.1μF, 25V
R5346			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W	C48			QEKJ0JM-476	E CAPACITOR 47μF, 6.3V
R5347			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W	C49			NDC21HJ-221X	CAPACITOR 220pF, 50V
R5348			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W	C54			QEKJ1CM-106	E CAPACITOR 10μF, 16V
R5349			NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W	C55			QEKJ1CM-106	E CAPACITOR 10μF, 16V
R5350			NRSA02J-221X	MG RESISTOR 220Ω, 1/10W	C56			QEKJ1HM-335	E CAPACITOR 3.3μF, 50V
R5351			NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W	C57			NCB21EK-104X	CAPACITOR 0.1μF, 25V
R5352			NRSA02J-473X	MG RESISTOR, S9500E 47kΩ, 1/10W	C58			NCB21EK-104X	CAPACITOR 0.1μF, 25V
R5451			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W	C59			NCB21EK-473X	CAPACITOR 0.047μF, 25V
R5452			QRE123J-331X	RESISTOR 330Ω, 1/2W	C62			NCF21CZ-334X	CAPACITOR 0.33μF, 16V
R6001			NRSA02J-271X	MG RESISTOR 270Ω, 1/10W	C63			NDC21HG-151X	CAPACITOR 150pF, 50V
R6002			NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W	C64			QEKJ0JM-227	E CAPACITOR 220μF, 6.3V
R6020			NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W	C65			NCB21EK-104X	CAPACITOR 0.1μF, 25V
R6021			NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W	C73			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R6022			NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W	C74			NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W
R6023			NRSA02J-0R0X	MG RESISTOR 0Ω, 1/10W	C76			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R6030			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W	C77			NDC21HJ-270X	CAPACITOR 27pF, 50V
R6032			NRSA02J-472X	MG RESISTOR, S9500EH 4.7kΩ, 1/10W	C79			NDC21HJ-120X	CAPACITOR 12pF, 50V
R6033			NRSA02J-182X	MG RESISTOR, S9500EH 1.8kΩ, 1/10W	C85			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R6051			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C86			QEKJ0JM-476	E CAPACITOR 47μF, 6.3V
R6052			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C87			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R6053			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W	C88			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R6054			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W	C89			NCB21HK-103X	CAPACITOR 0.01μF, 50V

△ REF No.	PART No.	PART NAME, DESCRIPTION		# △ REF No.	PART No.	PART NAME, DESCRIPTION	
C90	NCB21HK-103X	CAPACITOR	0.01μF,50V	C2216	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C91	NCB21EK-104X	CAPACITOR	0.1μF,25V	C2217	NCB21HK-103X	CAPACITOR	0.01μF,50V
C92	NDC21HJ-120X	CAPACITOR	12pF,50V	C2218	NCB21HK-153X	CAPACITOR	0.015μF,50V
C98	NCB21HK-103X	CAPACITOR	0.01μF,50V	C2219	QETC1CM-476	E CAPACITOR	47μF,16V
C105	QDYB1CM-103Y	CAPACITOR	0.01μF,16V	C2220	QETC1HM-225	E CAPACITOR	2.2μF,50V
C107	NDC21HJ-5R0X	CAPACITOR	5pF,50V	C2221	NCB21CK-473X	CAPACITOR	0.047μF,16V
C108	NCB21EK-104X	CAPACITOR	0.1μF,25V	C2222	QEKJ1CM-476	E CAPACITOR	47μF,16V
C118	NCB21CK-474X	CAPACITOR	0.47μF,16V	C2224	QEKJ1HM-105	E CAPACITOR	1μF,50V
C127	NCB21CK-474X	CAPACITOR	0.47μF,16V	C2227	QEKJ1HM-224	E CAPACITOR	0.22μF,50V
C133	NCB21EK-104X	CAPACITOR	0.1μF,25V	C2228	QEKJ1CM-476	E CAPACITOR	47μF,16V
C134	NCB21HK-103X	CAPACITOR	0.01μF,50V	C2229	QEKJ1CM-226	E CAPACITOR	22μF,16V
C141	NCB21HK-103X	CAPACITOR	0.01μF,50V	C2230	QEKJ1CM-106	E CAPACITOR	10μF,16V
C143	QEKJ0JM-476	E CAPACITOR	47μF,6.3V	C2231	QTE1H11-106Z	E CAPACITOR	10μF
C164	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	C2232	QTE1H11-106Z	E CAPACITOR	10μF
C165	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	C2233	QEKJ1HM-105	E CAPACITOR	1μF,50V
C172	QDX11EK-104	CAPACITOR	0.1μF,25V	C2234	QEKJ1HM-105	E CAPACITOR	1μF,50V
C173	NDC21HJ-220X	CAPACITOR	22pF,50V	C2236	QTE1C40-476	E CAPACITOR	47μF
C401	QEKJ1CM-106	E CAPACITOR	10μF,16V	C2239	NCB21EK-104X	CAPACITOR	0.1μF,25V
C402	NCB21HK-103X	CAPACITOR	0.01μF,50V	C2251	NCB21HK-103X	CAPACITOR	0.01μF,50V
C403	NDC21HJ-150X	CAPACITOR	15pF,50V	C2252	NCB21HK-103X	CAPACITOR	0.01μF,50V
C404	NCB21HK-102X	CAPACITOR	0.001μF,50V	C2253	NCB21HK-103X	CAPACITOR	0.01μF,50V
C406	NDC21HJ-470X	CAPACITOR	47pF,50V	C2254	QEKJ1CM-476	E CAPACITOR	47μF,16V
C407	NCB21HK-223X	CAPACITOR	0.022μF,50V	C2255	NCB21EK-104X	CAPACITOR	0.1μF,25V
C408	NDC21HJ-121X	CAPACITOR	120pF,50V	C2256	NDC21HJ-101X	CAPACITOR	100pF,50V
C409	NCB21HK-103X	CAPACITOR	0.01μF,50V	C2257	NCB21HK-103X	CAPACITOR	0.01μF,50V
C2002	QEKJ1CM-476	E CAPACITOR	47μF,16V	C2258	NCB21HK-223X	CAPACITOR	0.022μF,50V
C2003	NCB21HK-123X	CAPACITOR	0.012μF,50V	C2259	NCB21HK-103X	CAPACITOR	0.01μF,50V
C2004	QEKJ1CM-226	E CAPACITOR	22μF,16V	C2260	NDC21HJ-221X	CAPACITOR	220pF,50V
C2005	NCB21HK-102X	CAPACITOR	0.001μF,50V	C2261	NCB21HK-103X	CAPACITOR	0.01μF,50V
C2006	NCB21HK-331X	CAPACITOR	330pF,50V	C3001	QEKJ1CM-336	E CAPACITOR	33μF,16V
C2007	QEKJ1CM-106	E CAPACITOR	10μF,16V	C3004	QEZ0244-229	EDL CAPACITOR	0.0022F
C2008	NCB21HK-152X	CAPACITOR	0.0015μF,50V	C3006	NCB21CK-473X	CAPACITOR	0.047μF,16V
C2009	QEKJ1EM-475	E CAPACITOR	4.7μF,25V	C3012	NDC21HJ-102X	CAPACITOR	0.001μF,50V
C2010	QEKJ1EM-475	E CAPACITOR	4.7μF,25V	C3015	QEKJ1CM-106	E CAPACITOR	10μF,16V
C2011	NCB21EK-333X	CAPACITOR,S9500EH	0.033μF,25V	C3016	NCB21HK-103X	CAPACITOR	0.01μF,50V
C2013	NCB21EK-333X	CAPACITOR	0.033μF,25V	C3017	NDC21HJ-180X	CAPACITOR	18pF,50V
C2015	QEKJ1CM-226	E CAPACITOR	22μF,16V	C3018	QAT7001-450Z	TRIM CAPACITOR,TIMER CLOCK	
C2016	QEKJ1EM-475	E CAPACITOR	4.7μF,25V	C3022	NCB21CK-473X	CAPACITOR	0.047μF,16V
C2051	NCB21HK-331X	CAPACITOR	330pF,50V	C3025	QEKJ1HM-106	E CAPACITOR	10μF,50V
C2052	QFLC1HJ-333Z	F CAPACITOR	0.033μF,50V	C3026	NCB21HK-103X	CAPACITOR	0.01μF,50V
C2053	NCB21HK-332X	CAPACITOR	0.0033μF,50V	C3027	NCB21EK-104X	CAPACITOR	0.1μF,25V
C2054	NCB21EK-103X	CAPACITOR	0.01μF,25V	C3034	NCB21HK-221X	CAPACITOR	220pF,50V
C2055	QEKJ1CM-106	E CAPACITOR	10μF,16V	C3042	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
C2061	QFLC1HJ-333Z	F CAPACITOR	0.033μF,50V	C3043	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
C2062	NCB21HK-332X	CAPACITOR	0.0033μF,50V	C3302	QEKJ1CM-106	E CAPACITOR	10μF,16V
C2063	NCB21HK-103X	CAPACITOR	0.01μF,50V	C3303	NCB21EK-104X	CAPACITOR	0.1μF,25V
C2064	QEKJ1CM-106	E CAPACITOR	10μF,16V	C3306	NCB21EK-104X	CAPACITOR	0.1μF,25V
C2101	QEKJ1EM-475	E CAPACITOR	4.7μF,25V	C3307	NCB21EK-104X	CAPACITOR	0.1μF,25V
C2102	QEKJ1CM-226	E CAPACITOR	22μF,16V	C4001	NDC21HJ-101X	CAPACITOR	100pF,50V
C2103	NCB21EK-104X	CAPACITOR	0.1μF,25V	C4002	NCB21HK-102X	CAPACITOR	0.001μF,50V
C2202	QETC1CM-226Z-E	E CAPACITOR	22μF,16V	C4003	NCB21HK-102X	CAPACITOR	0.001μF,50V
C2205	QEKJ1HM-105	E CAPACITOR	1μF,50V	C4004	NCB21HK-102X	CAPACITOR	0.001μF,50V
C2207	NCB21CK-473X	CAPACITOR	0.047μF,16V	C4005	NDC21HJ-470X	CAPACITOR	47pF,50V
C2208	QETC1CM-476	E CAPACITOR	47μF,16V	C4006	QEKJ1HM-105	E CAPACITOR	1μF,50V
C2209	QETC1HM-225	E CAPACITOR	2.2μF,50V	C4007	NCB21EK-104X	CAPACITOR	0.1μF,25V
C2210	QETC1CM-476	E CAPACITOR	47μF,16V	C4008	NCB21EK-103X	CAPACITOR	0.01μF,25V
C2211	NCB21HK-153X	CAPACITOR	0.015μF,50V	C4010	QEKJ1CM-106	E CAPACITOR	10μF,16V
C2212	NCB21HK-103X	CAPACITOR	0.01μF,50V	C4011	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
C2213	QEKJ1EM-475	E CAPACITOR	4.7μF,25V	C4013	QEKJ1CM-106	E CAPACITOR	10μF,16V
C2214	NCB21HK-103X	CAPACITOR	0.01μF,50V	C4014	NCB21EK-223X	CAPACITOR	0.022μF,25V
C2215	QEKJ1HM-224	E CAPACITOR	0.22μF,50V	C4015	NCB21HK-222X	CAPACITOR	0.0022μF,50V

#	△	REF No.	PART No.	PART NAME, DESCRIPTION	#	△	REF No.	PART No.	PART NAME, DESCRIPTION		
			C4018	NDC21HJ-221X			L2251	QQL29BJ-100Z	COIL	10μH	
			C4019	NCB21EK-223X			L2252	QQL29BJ-151Z	COIL	150μH	
△		C5001	QFZ9051-683	F CAPACITOR			L3003	QQL29BJ-100Z	COIL	10μH	
△		C5002	QFZ9051-333	F CAPACITOR			L3302	QQL29BJ-100Z	COIL	10μH	
△		C5005	QCZ9071-222	CAPACITOR			L4001	QQL071J-270Y	COIL	27μH	
		C5006	QEZ0374-686	E CAPACITOR			L5201	PELN1184	COIL	33μH	
		C5101	QCZ0212-472	CAPACITOR			L5202	PU60944-330K	COIL	33μH	
		C5102	QCZ0302-330Z	CAPACITOR			L5301	QQL01BK-101Z	COIL	100μH	
		C5104	QETC1HM-105	E CAPACITOR			L6002	QQL29BK-1R0Z	COIL	1μH	
		C5105	QFN31HJ-183	F CAPACITOR			L6031	QQL29BK-1R0Z	COIL,S9500EH	1μH	
		C5106	QCBBIHJ-271	CAPACITOR			CF3001	QAX0356-001Z	RESONATOR		
		C5107	QFVFIHJ-104Z	F CAPACITOR			CF3301	QAX0356-001Z	RESONATOR		
		C5201	QEMU0JM-227	E CAPACITOR			CF7201	QAX0498-001Z	RESONATOR		
		C5202	QEMT1CM-128	E CAPACITOR			X1	QAX0436-001	CRYSTAL RESONATOR		
		C5203	QETC1CM-227	E CAPACITOR			X3001	QAX0445-001	CRYSTAL RESONATOR		
		C5204	QEMT1AM-128	E CAPACITOR			S3003	QSW0695-001	PUSH SWITCH		
		C5205	QETC1AM-227	E CAPACITOR			K5101	QQR0678-001Z	FERRITE BEAD		
		C5206	QEMU1EM-187	E CAPACITOR			PC3001	GP3S123	PHOTOTRANSISTOR		
		C5207	QETC1JM-106	E CAPACITOR			PC3002	GP3S123	PHOTOTRANSISTOR		
		C5208	QETC1HM-106	E CAPACITOR			△	PC5101	ON3171/R/	IC(PHOTO COUPLE)	
		C5301	QETC1AM-107	E CAPACITOR			△	PC5301	PS2501-1	PH COUPLER,S9500E	
		C5302	QETC1HM-106	E CAPACITOR			T2051	PELN0860	OSC TRANSFORMER		
		C5303	QETC1CM-107	E CAPACITOR			T2052	PELN0861	OSC TRANSFORMER		
		C5306	NCF21HZ-103X	CAPACITOR			△	T5001	QQS0021-001	SW TRANSF,S9500EH	
		C5307	QETC1HM-474	E CAPACITOR			△		QQS0027-001	SW TRANSF,S9500E	
		C5308	NCB21HK-102X	CAPACITOR			ET1	LP40280-001B	EARTH PLATE		
		C5309	QETC1AM-107	E CAPACITOR			△	F5001	QMF51E2-1R6J1	FUSE	T1.6A
		C5310	QETC1CM-226	E CAPACITOR			FC5001	QNG0006-001Z	FUSE CLIP,F5001		
		C5314	NCB21HK-102X	CAPACITOR			FC5002	QNG0006-001Z	FUSE CLIP,F5001		
		C5315	QETC1AM-107	E CAPACITOR			△	HS1	PQ46583-1-1	HEAT SINK,Q5101	
		C5316	QETC1CM-476	E CAPACITOR			OT1	QYTDST3008Z	SCREW,X2 Q5101		
		C5317	QETC1CM-107	E CAPACITOR			SD1	LP30364-001A	S.CASE(PRE/REC)		
		C6001	QETC1CM-476	E CAPACITOR			TU6001	QAU0076-002	TUNER		
		C6003	QETC1CM-336	E CAPACITOR			J7108	PU61012	MINI JACK,R.PAUSE I/O		
		C6004	NCB21HK-103X	CAPACITOR			△	LF5001	PELN1204-01-01	LINE FILTER	
		C6005	QETC1HM-106	E CAPACITOR			△	LF5002	QQR0608-001	LINE FILTER	
		C6006	NCB21HK-103X	CAPACITOR			CN1	QGF1018C1-13	FPC CONNECTOR,(1-13) U.DRUM		
		C6008	NCB21HK-103X	CAPACITOR			CN2001	QGF1207C1-07	FPC CONNECTOR,(1-7)A/C HEAD		
		C6012	QETC1HM-106	E CAPACITOR			CN2002	QGB2532J1-02	CONNECTOR,(1-2)FE HEAD		
		C6014	NCB21CK-473X	CAPACITOR			CN3001	QGB2015M1-08	CONNECTOR,(1-8)CAP.MOTOR		
		C6024	NCB21HK-471X	CAPACITOR			CN3003	QGB2532J1-02	CONNECTOR,(1-2)L.MOTOR		
		C6027	NDC21HJ-101X	CAPACITOR			CN3004	QGB2534J2-04	CONNECTOR,(1-4)R.ENCODER		
		C6031	QETC1HM-106	E CAPACITOR,S9500EH			CN3005	QGF1207C1-12	FPC CONNECTOR,(1-12)FRONT		
		C6032	NCB21EK-333X	CAPACITOR,S9500EH			CN3301	QGB2011L2-06	CONNECTOR,(1-6)DD MOTOR		
		C6033	NRSA02J-0R0X	MG RESISTOR			CN4001	QGF1207C1-04	FPC CONNECTOR,(1-4)DRUM MDA		
		C6051	NDC21HJ-101X	CAPACITOR			CN4002	QGB2530K1-12	CONNECTOR,(1-12)DD S LOW		
		C6052	NCB21HK-103X	CAPACITOR			△	CN5001	QGA7901C3-02	CONNECTOR,(1-2)AC IN	
		C7201	NCB21HK-103X	CAPACITOR			CN7104	QGB2013K1-11	CONNECTOR,(1-11)TERMINAL		
		L1	QQL29BJ-100Z	COIL			CN7105	QGB2013K1-13	CONNECTOR,(1-13)TERMINAL		
		L4	QQL29BJ-100Z	COIL			CN7106	QGB2013K1-13	CONNECTOR,(1-13)TERMINAL		
		L5	QQL29BJ-151Z	COIL			CN7162	QGF1207C1-05	FPC CONNECTOR,(1-5)FRONT		
		L6	QQL29BJ-101Z	COIL			△	CP3003	ICP-N20	CIRCUIT PROTECTOR	
		L7	QQL29BJ-100Z	COIL			△	CP4001	ICP-N15	CIRCUIT PROTECTOR	
		L9	QQL29BJ-100Z	COIL			△	CP5301	ICP-N38	CIRCUIT PROTECTOR	
		L12	QQL071J-330Y	COIL			△	CP5302	ICP-N25	CIRCUIT PROTECTOR	
		L13	QQL071J-120Y	COIL			△	CP5303	ICP-N25	CIRCUIT PROTECTOR	
		L14	QQL071J-820Y	COIL							
		L16	QQL29BJ-100Z	COIL							
		L18	PELN1203	COIL							
		L401	QQL29BJ-101Z	COIL							
		L402	QQL03BJ-150Z	COIL							

△ REF No. PART No. PART NAME, DESCRIPTION

3D SVHS BOARD ASSEMBLY <05>

PW1	LPA10033-05C	3D SVHS BOARD ASSY	
IC1001	JCP8008	IC	
IC1002	VC2076MP-XE	IC	
IC1006	HA118092FP1	IC	
IC1007	BA10358F	IC	
IC1401	JCP8010-2	IC(DIGITAL)	
IC1402	MN47V77S-XE	IC	
Q1004	DTC144WU	TRANSISTOR	
Q1005	DTC144WU	TRANSISTOR	
Q1006	2SA1576A/QRS/-X	TRANSISTOR	
Q1007	2SC4081/QRS/-X	TRANSISTOR	
Q1010	DTC144WU	TRANSISTOR	
Q1012	2SC4081/QRS/-X	TRANSISTOR	
Q1014	2SC4081/QRS/-X	TRANSISTOR	
Q1015	2SC4081/QRS/-X	TRANSISTOR	
Q1016	DTC144WU	TRANSISTOR	
Q1021	2SA1576A/QRS/-X	TRANSISTOR	
Q1022	DTC144WU	TRANSISTOR	
Q1023	DTC144EU	TRANSISTOR	
Q1401	2SC1317/RS/-T	TRANSISTOR	
Q1402	2SC4081/QRS/-X	TRANSISTOR	
Q1403	2SC4081/QRS/-X	TRANSISTOR	
Q1404	2SC4081/S/-X	TRANSISTOR	
Q1405	2SC4081/QRS/-X	TRANSISTOR	
Q1406	2SA1576A/QRS/-X	TRANSISTOR	
Q1407	2SA1576A/QRS/-X	TRANSISTOR	
Q1408	2SA1576A/QRS/-X	TRANSISTOR	
Q1409	2SA1576A/QRS/-X	TRANSISTOR	
Q1410	2SC4081/QRS/-X	TRANSISTOR	
Q1411	2SA1576A/QRS/-X	TRANSISTOR	
Q1412	DTC144WU	TRANSISTOR	
Q1413	DTC144WU	TRANSISTOR	
Q1414	DTC144WU	TRANSISTOR	
Q1416	DTC144WU	TRANSISTOR	
Q1417	2SC4081/QRS/-X	TRANSISTOR	
	or 2PC4081/R/-X	TRANSISTOR	
	or 2SD1819A/QRS/-X	TRANSISTOR	
Q1418	2SC4081/QRS/-X	TRANSISTOR	
	or 2SD1819A/QRS/-X	TRANSISTOR	
	or 2PC4081/R/-X	TRANSISTOR	
D1002	1SS133	DIODE	
	or 1N4148M	DIODE	
D1003	1SS133	DIODE	
	or 1N4148M	DIODE	
D1004	1SS133	DIODE	
	or 1N4148M	DIODE	
D1006	1SS133	DIODE	
	or 1N4148M	DIODE	
D1401	RD3.9ES/B2/-T2	ZENER DIODE	
D1402	1SS133	DIODE	
	or 1N4148M	DIODE	
R1002	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
R1003	NRSA02J-221X	MG RESISTOR	220Ω, 1/10W
R1004	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
R1007	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
R1008	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
R1009	NRSA02J-125X	MG RESISTOR	1.2MΩ, 1/10W

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	
	R1010	NRVA02D-332X	CMF RESISTOR	3.3kΩ, 1/10W
	R1011	NRVA02D-332X	CMF RESISTOR	3.3kΩ, 1/10W
	R1012	NRVA02D-152X	CMF RESISTOR	1.5kΩ, 1/10W
	R1013	NRVA02D-471X	CMF RESISTOR	470Ω, 1/10W
	R1014	NRVA02D-102X	CMF RESISTOR	1kΩ, 1/10W
	R1015	NRVA02D-102X	CMF RESISTOR	1kΩ, 1/10W
	R1016	NRSA02J-122X	MG RESISTOR	1.2kΩ, 1/10W
	R1017	NRSA02J-162X	MG RESISTOR	1.6kΩ, 1/10W
	R1018	NRSA02J-151X	MG RESISTOR	150Ω, 1/10W
	R1019	NRSA02J-391X	MG RESISTOR	390Ω, 1/10W
	R1020	NRSA02J-332X	MG RESISTOR	3.3kΩ, 1/10W
	R1021	NRSA02J-332X	MG RESISTOR	3.3kΩ, 1/10W
	R1023	NRSA02J-272X	MG RESISTOR	2.7kΩ, 1/10W
	R1025	NRSA02J-823X	MG RESISTOR	82kΩ, 1/10W
	R1026	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W
	R1027	NRSA02J-561X	MG RESISTOR	560Ω, 1/10W
	R1028	NRSA02J-561X	MG RESISTOR	560Ω, 1/10W
	R1029	NRSA02J-473X	MG RESISTOR	47kΩ, 1/10W
	R1030	NRSA02J-473X	MG RESISTOR	47kΩ, 1/10W
	R1031	NRSA02J-562X	MG RESISTOR	5.6kΩ, 1/10W
	R1032	NRSA02J-181X	MG RESISTOR	180Ω, 1/10W
	R1037	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
	R1038	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
	R1039	NRSA02J-394X	MG RESISTOR	390kΩ, 1/10W
	R1045	NRSA02J-272X	MG RESISTOR	2.7kΩ, 1/10W
	R1046	NRSA02J-273X	MG RESISTOR	27kΩ, 1/10W
	R1047	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
	R1048	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
	R1049	NRSA02J-475X	MG RESISTOR	4.7MΩ, 1/10W
	R1053	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W
	R1054	NRSA02J-221X	MG RESISTOR	220Ω, 1/10W
	R1055	NRVA02D-563X	CMF RESISTOR	56kΩ, 1/10W
	R1056	NRVA02D-224X	CMF RESISTOR	220kΩ, 1/10W
	R1058	NRSA02J-273X	MG RESISTOR	27kΩ, 1/10W
	R1059	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
	R1060	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
	R1063	NRSA02J-152X	MG RESISTOR	1.5kΩ, 1/10W
	R1064	NRSA02J-332X	MG RESISTOR	3.3kΩ, 1/10W
	R1065	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W
	R1066	NRSA02J-272X	MG RESISTOR	2.7kΩ, 1/10W
	R1067	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W
	R1068	NRSA02J-361X	MG RESISTOR	360Ω, 1/10W
	R1069	NRSA02J-471X	MG RESISTOR	470Ω, 1/10W
	R1070	NRSA02J-391X	MG RESISTOR	390Ω, 1/10W
	R1071	NRSA02J-184X	MG RESISTOR	180kΩ, 1/10W
	R1072	NRSA02J-682X	MG RESISTOR	6.8kΩ, 1/10W
	R1073	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
	R1401	NRSA02J-680X	MG RESISTOR	68Ω, 1/10W
	R1402	NRSA02J-101X	MG RESISTOR	100Ω, 1/10W
	R1403	NRSA02J-223X	MG RESISTOR	22kΩ, 1/10W
	R1404	NRSA02J-123X	MG RESISTOR	12kΩ, 1/10W
	R1405	NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W
	R1406	NRSA02J-471X	MG RESISTOR	470Ω, 1/10W
	R1407	NRSA02J-821X	MG RESISTOR	820Ω, 1/10W
	R1408	NRSA02J-222X	MG RESISTOR	2.2kΩ, 1/10W
	R1409	NRSA02J-681X	MG RESISTOR	680Ω, 1/10W
	R1410	NRSA02J-223X	MG RESISTOR	22kΩ, 1/10W
	R1411	NRSA02J-243X	MG RESISTOR	24kΩ, 1/10W
	R1412	NRSA02J-104X	MG RESISTOR	100kΩ, 1/10W
	R1413	NRSA02J-471X	MG RESISTOR	470Ω, 1/10W
	R1414	NRSA02J-331X	MG RESISTOR	330Ω, 1/10W

#	△	REF No.	PART No.	PART NAME, DESCRIPTION		#	△	REF No.	PART No.	PART NAME, DESCRIPTION	
R1415			NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C1016			QEKJ1HM-225	E CAPACITOR	2.2μF, 50V
R1416			NRSA02J-471X	MG RESISTOR	470Ω, 1/10W	C1017			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1417			NRSA02J-821X	MG RESISTOR	820Ω, 1/10W	C1019			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1418			NRSA02J-471X	MG RESISTOR	470Ω, 1/10W	C1020			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1419			NRSA02J-221X	MG RESISTOR	220Ω, 1/10W	C1021			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1420			NRSA02J-152X	MG RESISTOR	1.5kΩ, 1/10W	C1022			QEKJ1HM-105	E CAPACITOR	1μF, 50V
R1422			NRSA02J-391X	MG RESISTOR	390Ω, 1/10W	C1023			QEKJ1HM-225	E CAPACITOR	2.2μF, 50V
R1423			NRSA02J-821X	MG RESISTOR	820Ω, 1/10W	C1024			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1425			NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C1026			NCF21EZ-104X	CAPACITOR	0.1μF, 25V
R1428			NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	C1027			NCF21EZ-104X	CAPACITOR	0.1μF, 25V
R1429			NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	C1028			QEKJ0JM-337	E CAPACITOR	330μF, 6.3V
R1430			NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	C1029			QEKJ1HM-104	E CAPACITOR	0.1μF, 50V
R1431			NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	C1030			QEKJ1HM-105	E CAPACITOR	1μF, 50V
R1432			NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	C1031			QEKJ1HM-225	E CAPACITOR	2.2μF, 50V
R1433			NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W	C1033			QEKJ1HM-105	E CAPACITOR	1μF, 50V
R1434			NRSA02J-473X	MG RESISTOR	47kΩ, 1/10W	C1034			QEPF1HM-105	NP E CAPACITOR	1μF, 50V
R1435			NRSA02J-242X	MG RESISTOR	2.4kΩ, 1/10W	C1035			QEKJ1EM-475	E CAPACITOR	4.7μF, 25V
R1436			NRSA02J-153X	MG RESISTOR	15kΩ, 1/10W	C1036			QEKJ0JM-226	E CAPACITOR	22μF, 6.3V
R1437			NRSA02J-123X	MG RESISTOR	12kΩ, 1/10W	C1037			QEKJ1HM-225	E CAPACITOR	2.2μF, 50V
R1438			NRSA02J-821X	MG RESISTOR	820Ω, 1/10W	C1038			QEKJ1HM-225	E CAPACITOR	2.2μF, 50V
R1439			NRSA02J-101X	MG RESISTOR	100Ω, 1/10W	C1039			QEKJ1CM-476	E CAPACITOR	47μF, 16V
R1440			NRSA02J-223X	MG RESISTOR	22kΩ, 1/10W	C1040			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1442			NRSA02J-223X	MG RESISTOR	22kΩ, 1/10W	C1041			NDC21HG-301X	CAPACITOR	300pF, 50V
R1443			NRSA02J-472X	MG RESISTOR	4.7kΩ, 1/10W	C1042			NDC21HG-301X	CAPACITOR	300pF, 50V
R1444			NRSA02J-221X	MG RESISTOR	220Ω, 1/10W	C1043			NDC21HG-221X	CAPACITOR	220pF, 50V
R1445			NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C1044			NDC21HG-820X	CAPACITOR	82pF, 50V
R1446			NRSA02J-222X	MG RESISTOR	2.2kΩ, 1/10W	C1045			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1447			NRSA02J-152X	MG RESISTOR	1.5kΩ, 1/10W	C1046			NDC21HG-271X	CAPACITOR	270pF, 50V
R1448			NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	C1047			NDC21HJ-101X	CAPACITOR	100pF, 50V
R1449			NRSA02J-470X	MG RESISTOR	47Ω, 1/10W	C1048			NDC21HJ-181X	CAPACITOR	180pF, 50V
R1451			NRSA02J-681X	MG RESISTOR	680Ω, 1/10W	C1049			NDC21HG-301X	CAPACITOR	300pF, 50V
R1452			NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C1050			NDC21HG-301X	CAPACITOR	300pF, 50V
R1454			NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C1056			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1455			NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C1057			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1456			NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C1058			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1457			NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C1063			NDC21HJ-101X	CAPACITOR	100pF, 50V
R1458			NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C1064			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1459			NRSA02J-102X	MG RESISTOR	1kΩ, 1/10W	C1065			QEKJ0JM-227	E CAPACITOR	220μF, 6.3V
R1460			NRSA02J-104X	MG RESISTOR	100kΩ, 1/10W	C1066			NCB21EK-223X	CAPACITOR	0.022μF, 25V
R1461			NRSA02J-182X	MG RESISTOR	1.8kΩ, 1/10W	C1067			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1462			NRSA02J-272X	MG RESISTOR	2.7kΩ, 1/10W	C1068			QEKJ1HM-105	E CAPACITOR	1μF, 50V
R1463			NRSA02J-682X	MG RESISTOR	6.8kΩ, 1/10W	C1069			QEKJ1CM-106	E CAPACITOR	10μF, 16V
R1465			NRSA02J-821X	MG RESISTOR	820Ω, 1/10W	C1070			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1467			NRSA02J-682X	MG RESISTOR	6.8kΩ, 1/10W	C1071			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1468			NRSA02J-162X	MG RESISTOR	1.6kΩ, 1/10W	C1072			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1470			NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W	C1073			NDC21HJ-150X	CAPACITOR	15pF, 50V
R1471			NRSA02J-333X	RESISTOR	33kΩ, 1/10W	C1074			NCB21HK-103X	CAPACITOR	0.01μF, 50V
R1472			NRSA02J-472X	RESISTOR	4.7kΩ, 1/10W	C1082			NCB21HK-103X	CAPACITOR	0.01μF, 50V
VR1002			QVZ3521-104Z	V RESISTOR, P.BURST LEVEL		C1086			NCB21HK-103X	CAPACITOR	0.01μF, 50V
VR1401			QVP0039-103Z	TRIM RESISTOR, DIA LEVEL		C1087			NCB21HK-103X	CAPACITOR	0.01μF, 50V
C1001			QEKJ0JM-476	E CAPACITOR	47μF, 6.3V	C1088			NCB21HK-103X	CAPACITOR	0.01μF, 50V
C1002			QEKJ1HM-474	E CAPACITOR	0.47μF, 50V	C1089			NCB21HK-103X	CAPACITOR	0.01μF, 50V
C1003			QEKJ1CM-106	E CAPACITOR	10μF, 16V	C1092			NCB21HK-103X	CAPACITOR	0.01μF, 50V
C1005			QEKJ1EM-475	E CAPACITOR	4.7μF, 25V	C1095			NCB21HK-103X	CAPACITOR	0.01μF, 50V
C1006			NCB21HK-103X	CAPACITOR	0.01μF, 50V	C1401			QEKJ1CM-336	E CAPACITOR	33μF, 16V
C1007			NCF21EZ-104X	CAPACITOR	0.1μF, 25V	C1402			NCB21HK-103X	CAPACITOR	0.01μF, 50V
C1010			NCF21EZ-104X	CAPACITOR	0.1μF, 25V	C1403			NCB21HK-103X	CAPACITOR	0.01μF, 50V
C1011			NDC21HJ-150X	CAPACITOR	15pF, 50V	C1404			NCB21HK-103X	CAPACITOR	0.01μF, 50V
C1013			NCF21EZ-104X	CAPACITOR	0.1μF, 25V	C1405			NDC21HJ-220X	CAPACITOR	22pF, 50V
C1014			QEKJ1HM-225	E CAPACITOR	2.2μF, 50V	C1406			NDC21HJ-6R0X	CAPACITOR	6pF, 50V
C1015			QEKJ1EM-475	E CAPACITOR	4.7μF, 25V	C1407			NDC21HJ-390X	CAPACITOR	39pF, 50V

#	△ REF No.	PART No.	PART NAME, DESCRIPTION	#	△ REF No.	PART No.	PART NAME, DESCRIPTION
	C1408	NCF21EZ-104X	CAPACITOR 0.1μF,25V		L1004	QQL071J-680Y	COIL 68μH
	C1409	NCB21HK-103X	CAPACITOR 0.01μF,50V		L1006	QQL29BJ-101Z	COIL 100μH
	C1410	QEKJ0JM-337	E CAPACITOR 330μF,6.3V		L1008	QQL29BJ-100Z	COIL 10μH
	C1411	QEKJ1CM-106	E CAPACITOR 10μF,16V		L1401	QQL071J-330Y	COIL 33μH
	C1412	NCF21EZ-104X	CAPACITOR 0.1μF,25V		L1402	QQL29BJ-100Z	COIL 10μH
	C1413	NCF21EZ-104X	CAPACITOR 0.1μF,25V		L1404	QQL071J-8R2Y	COIL 8.2μH
	C1414	NCB21HK-103X	CAPACITOR 0.01μF,50V		L1405	QQL071J-150Y	COIL 15μH
	C1415	NDC21HJ-221X	CAPACITOR 220pF,50V		L1406	QQL071J-6R8Y	COIL 6.8μH
	C1416	NDC21HJ-391X	CAPACITOR 390pF,50V		L1407	QQL29BJ-100Z	COIL 10μH
	C1417	NDC21HJ-680X	CAPACITOR 68pF,50V		L1408	QQL29BJ-100Z	COIL 10μH
	C1418	NDC21HJ-8R0X	CAPACITOR 8pF,50V		L1409	QQL071J-330Y	COIL 33μH
	C1419	NCF21EZ-104X	CAPACITOR 0.1μF,25V		L1410	QQL29BJ-4R7Z	COIL 4.7μH
	C1420	NCF21EZ-104X	CAPACITOR 0.1μF,25V		L1411	QQL071J-1R0Y	COIL 1μH
	C1421	NDC21HJ-680X	CAPACITOR 68pF,50V		LC1401	QQR0657-013Z	NOISE FILTER
	C1422	NDC21HJ-330X	CAPACITOR 33pF,50V		LC1402	QQR0657-010Z	NOISE FILTER
	C1424	NCF21EZ-104X	CAPACITOR 0.1μF,25V		SD1	LP30431-001B	S.CASE(S-VHS)
	C1425	QEKJ0JM-337	E CAPACITOR 330μF,6.3V		SD2	LP30406-001A	S.PLATE(S-VHS)
	C1426	NCB21HK-103X	CAPACITOR 0.01μF,50V		BK1	LP40077-001A	BRACKET(BOARD)
	C1427	NCF21EZ-104X	CAPACITOR 0.1μF,25V		CN1001	QGG2503K2-30	HEADER PIN
	C1428	NCF21EZ-104X	CAPACITOR 0.1μF,25V		CN1002	QGG2503K2-30	HEADER PIN
	C1429	NCF21EZ-104X	CAPACITOR 0.1μF,25V		CN1003	QGF1217F1-07	FPC CONNECTOR,(1-7)TERMINAL
	C1430	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1431	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1432	QEKJ1EM-475	E CAPACITOR 4.7μF,25V				
	C1433	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1434	QEKJ0JM-337	E CAPACITOR 330μF,6.3V				
	C1435	QEKJ1HM-105	E CAPACITOR 1μF,50V				
	C1436	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1437	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1438	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1439	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1440	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1441	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1442	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1443	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1444	QEKJ1HM-105	E CAPACITOR 1μF,50V				
	C1445	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1446	NCB21EK-104X	CAPACITOR 0.1μF,25V				
	C1447	NCB21HK-222X	CAPACITOR 0.0022μF,50V				
	C1448	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1449	QEKJ0JM-337	E CAPACITOR 330μF,6.3V				
	C1450	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1451	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1454	NDC21HJ-220X	CAPACITOR 22pF,50V				
	C1455	NDC21HJ-390X	CAPACITOR 39pF,50V				
	C1457	NCF21EZ-104X	CAPACITOR 0.1μF,25V				
	C1458	NCB21HK-103X	CAPACITOR 0.01μF,50V				
	C1459	NDC21HJ-470X	CAPACITOR 47pF,50V				
	C1460	NDC21HJ-470X	CAPACITOR 47pF,50V				
	C1461	NDC21HJ-470X	CAPACITOR 47pF,50V				
	C1462	NDC21HJ-470X	CAPACITOR 47pF,50V				
	C1463	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W				
	C1464	NDC21HJ-330X	CAPACITOR 33pF,50V				
	C1465	NDC21HJ-470X	CAPACITOR 47pF,50V				
	C1468	NDC21HJ-470X	CAPACITOR 47pF,50V				
	C1469	NDC21HJ-470X	CAPACITOR 47pF,50V				
	C1470	NDC21HJ-470X	CAPACITOR 47pF,50V				
	C1471	NDC21HJ-470X	CAPACITOR 47pF,50V				
	C1472	NDC21HJ-470X	CAPACITOR 47pF,50V				
	C1473	NDC21HJ-470X	CAPACITOR 47pF,50V				
	L1001	QQL29BJ-220Z	COIL 22μH				

TERMINAL BOARD ASSEMBLY <06>

PW1	LPA10016-12A1	TERM BOARD ASSY,S9500EH
	LPA10016-14A1	TERM BOARD ASSY,S9500E
IC201	LC74799-9608	IC
IC7131	BH7634AS	IC
IC7132	BA3129F	IC
IC7191	MM1231XF	IC
Q203	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q7131	2SA1576A/QR/-X	TRANSISTOR
Q7151	2SA1576A/QR/-X	TRANSISTOR
Q7152	2SA1576A/QR/-X	TRANSISTOR
Q7191	DTC114EU	TRANSISTOR
	or RN1302	TRANSISTOR
	or UN5211	TRANSISTOR
D7132	1SS133	DIODE,S9500E
	or 1N4148M	DIODE,S9500E
D7133	1SS133	DIODE,S9500E
	or 1N4148M	DIODE,S9500E
D7191	1SS133	DIODE
	or 1N4148M	DIODE
D7192	1SS133	DIODE
	or 1N4148M	DIODE
R201	NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
R204	NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
R205	NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
R206	NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
R208	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
R211	NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
R213	NRSA02J-101X	MG RESISTOR 100Ω,1/10W
R226	NRSA02J-182X	MG RESISTOR 1.8kΩ,1/10W

#	△	REF No.	PART No.	PART NAME, DESCRIPTION	#	△	REF No.	PART No.	PART NAME, DESCRIPTION
R252			NRSA02J-123X	MG RESISTOR 12kΩ, 1/10W	C254			QEKJ0JM-227	E CAPACITOR 220μF, 6.3V
R253			NRSA02J-182X	MG RESISTOR 1.8kΩ, 1/10W	C255			NCB21EK-333X	CAPACITOR 0.033μF, 25V
R254			NRSA02J-562X	MG RESISTOR 5.6kΩ, 1/10W	C256			QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
R255			NRSA02J-182X	MG RESISTOR 1.8kΩ, 1/10W	C258			NDC21HJ-560X	CAPACITOR 56pF, 50V
R258			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W	C7101			NCB21HK-681X	CAPACITOR 680pF, 50V
R7101			NRSA02J-750X	MG RESISTOR 75Ω, 1/10W	C7102			NCB21HK-681X	CAPACITOR 680pF, 50V
R7102			QRE141J-750Y	RESISTOR 75Ω, 1/4W	C7105			NCB21HK-102X	CAPACITOR 0.001μF, 50V
R7104			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C7106			NCB21HK-102X	CAPACITOR 0.001μF, 50V
R7105			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C7110			NCB21HK-681X	CAPACITOR 680pF, 50V
R7106			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C7111			NCB21HK-681X	CAPACITOR 680pF, 50V
R7107			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C7114			NCB21HK-102X	CAPACITOR 0.001μF, 50V
R7108			NRSA02J-750X	MG RESISTOR 75Ω, 1/10W	C7115			NCB21HK-102X	CAPACITOR 0.001μF, 50V
R7109			NRSA02J-750X	MG RESISTOR 75Ω, 1/10W	C7119			NCB21HK-102X	CAPACITOR 0.001μF, 50V
R7111			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C7120			NCB21HK-102X	CAPACITOR 0.001μF, 50V
R7112			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C7131			QEKJ1EM-475	E CAPACITOR 4.7μF, 25V
R7113			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C7132			QEKJ1CM-476	E CAPACITOR 47μF, 16V
R7114			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C7133			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R7115			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C7134			NCB21HK-223X	CAPACITOR 0.022μF, 50V
R7116			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C7135			NCB21HK-223X	CAPACITOR 0.022μF, 50V
R7131			QRE141J-181Y	RESISTOR 180Ω, 1/4W	C7136			NCB21HK-223X	CAPACITOR 0.022μF, 50V
R7132			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W	C7137			NCB21HK-223X	CAPACITOR 0.022μF, 50V
R7133			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W	C7138			NDC21HJ-330X	CAPACITOR 33pF, 50V
R7134			NRSA02J-471X	MG RESISTOR 470Ω, 1/10W	C7139			NDC21HJ-330X	CAPACITOR 33pF, 50V
R7136			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W	C7140			NDC21HJ-330X	CAPACITOR 33pF, 50V
R7137			NRSA02J-333X	MG RESISTOR 33kΩ, 1/10W	C7141			NDC21HJ-330X	CAPACITOR 33pF, 50V
R7138			NRSA02J-473X	MG RESISTOR 47kΩ, 1/10W	C7142			QEKJ0JM-476	E CAPACITOR 47μF, 6.3V
R7139			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W	C7143			NCB21HK-102X	CAPACITOR 0.001μF, 50V
R7140			NRSA02J-333X	MG RESISTOR 33kΩ, 1/10W	C7144			QEKJ1CM-106	E CAPACITOR 10μF, 16V
R7141			NRSA02J-103X	MG RESISTOR 10kΩ, 1/10W	C7145			QEKJ0JM-476	E CAPACITOR 47μF, 6.3V
R7147			NRSA02J-822X	MG RESISTOR, S9500E 8.2kΩ, 1/10W	C7146			NCB21HK-102X	CAPACITOR 0.001μF, 50V
R7148			NRSA02J-123X	MG RESISTOR, S9500E 12kΩ, 1/10W	C7147			QEKJ1CM-106	E CAPACITOR 10μF, 16V
R7149			NRSA02J-822X	MG RESISTOR, S9500E 8.2kΩ, 1/10W	C7151			QETA0JM-477	E CAPACITOR 470μF, 6.3V
R7150			NRSA02J-123X	MG RESISTOR, S9500E 12kΩ, 1/10W	C7153			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R7151			NRSA02J-750X	MG RESISTOR 75Ω, 1/10W	C7154			QEKJ1CM-476	E CAPACITOR 47μF, 16V
R7152			NRSA02J-750X	MG RESISTOR 75Ω, 1/10W	C7155			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R7153			NRSA02J-750X	MG RESISTOR 75Ω, 1/10W	C7156			QCB21HK-101	CAPACITOR 100pF, 50V
R7154			NRSA02J-680X	MG RESISTOR 68Ω, 1/10W	C7157			NDC21HJ-101X	CAPACITOR 100pF, 50V
R7157			QRE123J-391X	RESISTOR 390Ω, 1/2W	C7191			QEKJ1CM-107	E CAPACITOR 100μF, 16V
R7158			NRSA02J-101X	MG RESISTOR 100Ω, 1/10W	C7192			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R7160			QRE123J-391X	RESISTOR 390Ω, 1/2W	C7193			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R7161			NRSA02J-152X	MG RESISTOR 1.5kΩ, 1/10W	C7194			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R7162			NRSA02J-102X	MG RESISTOR 1kΩ, 1/10W	C7195			QEKJ1CM-106	E CAPACITOR 10μF, 16V
R7191			NRSA02J-750X	MG RESISTOR 75Ω, 1/10W	C7196			QEKJ1CM-106	E CAPACITOR 10μF, 16V
R7192			NRSA02J-223X	MG RESISTOR 22kΩ, 1/10W	C7197			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R7193			NRSA02J-123X	MG RESISTOR 12kΩ, 1/10W	C7198			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R7194			NRSA02J-822X	MG RESISTOR 8.2kΩ, 1/10W	C7199			NCB21HK-103X	CAPACITOR 0.01μF, 50V
R7195			QRE142J-563	RESISTOR 56kΩ, 1/4W	L202			QQL29BJ-330Z	COIL 33μH
R7196			QRE142J-152	RESISTOR 1.5kΩ, 1/4W	L204			QQL29BK-1R0Z	COIL 1μH
C201			NDC21HJ-100X	CAPACITOR 10pF, 50V	L206			QQL231J-1R0Y	COIL 1μH
C205			NDC21HJ-470X	CAPACITOR 47pF, 50V	L251			QQL231J-100Y	COIL 10μH
C206			NDC21HJ-470X	CAPACITOR 47pF, 50V	L252			QQL231J-220Y	COIL 22μH
C207			NCB21CK-224X	CAPACITOR 0.22μF, 16V	L7101			QQL231J-R22Y	COIL 0.22μH
C209			NCB21CK-224X	CAPACITOR 0.22μF, 16V	L7102			QQL231J-4R7Y	COIL 4.7μH
C211			QEKJ1HM-105	E CAPACITOR 1μF, 50V	L7103			QQL231J-4R7Y	COIL 4.7μH
C213			QEKJ1HM-105	E CAPACITOR 1μF, 50V	L7104			QQL231J-4R7Y	COIL 4.7μH
C215			QEKJ0JM-227	E CAPACITOR 220μF, 6.3V	L7105			QQL231J-4R7Y	COIL 4.7μH
C219			NCB21CK-224X	CAPACITOR 0.22μF, 16V	L7106			QQL231J-1R0Y	COIL 1μH
C221			NDC21HJ-330X	CAPACITOR 33pF, 50V	L7107			QQL231J-4R7Y	COIL 4.7μH
C251			NCB21EK-104X	CAPACITOR 0.1μF, 25V	L7108			QQL231J-4R7Y	COIL 4.7μH
C252			QEKJ1EM-475	E CAPACITOR 4.7μF, 25V	L7109			QQL231J-4R7Y	COIL 4.7μH
C253			NCB21CK-224X	CAPACITOR 0.22μF, 16V	L7110			QQL231J-4R7Y	COIL 4.7μH

△ REF No.	PART No.	PART NAME, DESCRIPTION	
L7112	QQL231J-4R7Y	COIL	4.7μH
L7113	QQL231J-4R7Y	COIL	4.7μH
L7114	QQL231J-4R7Y	COIL	4.7μH
L7115	NQL302N-4R7X	COIL	4.7μH
L7132	QQL231J-1R0Y	COIL	1μH
L7133	QQL231J-1R0Y	COIL	1μH
L7134	QQL231J-1R0Y	COIL	1μH
L7135	QQL231J-1R0Y	COIL	1μH
SW7151	QSW0693-001	SLIDE SWITCH	
TB1	LP30361-007B	TERMINAL BOARD ASSY	
OT1	QYTDSF3008Z	SCREW,X8	
ET1	PQ21987-1-1	EATH PLATE(TERMINAL)	
J7101	PEMC1177	RGB21PIN SOCKET,A/V 1	
J7102	PEMC1177	RGB21PIN SOCKET,A/V 2	
J7103	QNN0021-002	PIN JACK,AUDIO OUT[R]	
J7104	QNN0021-003	PIN JACK,AUDIO OUT[L]	
J7105	PEMC1190	MINI JACK,JLIP	
J7152	QND0010-001	S JACK,S OUT	
CN7101	QGB2013J1-13	CONNECTOR,(1-13)MAIN	
CN7102	QGB2013J1-13	CONNECTOR,(1-13)MAIN	
CN7103	QGB2013J1-11	CONNECTOR,(1-11)MAIN	
CN7151	QGF1208F1-07	FPC CONNECTOR,(1-7)3D SVHS	
CN7191	QGF1208F1-04	FPC CONNECTOR,(1-4)JACK	

AUDIO CONTROL HEAD BOARD ASSEMBLY <12>

PW1	LPA10010-01A1	A/C HEAD BOARD ASSY
CN1	QGF1208F1-07	FPC CONNECTOR

DEMOD BOARD ASSEMBLY <14>

PW1	LPA10021-01A	DEMOD BOARD ASSY,S9500EH	
	LPA10030-01B	DEMOD BOARD ASSY,S9500E	
IC6701	MSP3415D	IC,S9500EH	
	TDA9821/V1	IC,S9500E	
IC6702	TDA9840	IC,S9500E	
Q6701	DTC144EU	TRANSISTOR,S9500E	
	2SC3068	TRANSISTOR,S9500EH	
Q6702	DTC144EU	TRANSISTOR,S9500E	
	2SC3354/TS-T	TRANSISTOR,S9500EH	
Q6704	DTC114EU	TRANSISTOR,S9500EH	
Q6705	DTC114EU	TRANSISTOR,S9500EH	
D6701	1N4148M	DIODE,S9500E	
	or 1SS133	DIODE,S9500E	
D6702	MTZJ9.1B	ZENER DIODE,S9500EH	
D6703	1N4148M	DIODE,S9500EH	
	or 1SS133	DIODE,S9500EH	
D6704	1N4148M	DIODE,S9500EH	
	or 1SS133	DIODE,S9500EH	
R6701	NRSA02J-101X	MG RESISTOR,S9500EH	100Ω,1/10W
	NRSA02J-331X	MG RESISTOR,S9500E	330Ω,1/10W

# △ REF No.	PART No.	PART NAME, DESCRIPTION	
R6702	NRSA02J-101X	MG RESISTOR,S9500EH	100Ω,1/10W
	NRSA02J-273X	MG RESISTOR,S9500E	27kΩ,1/10W
R6703	NRSA02J-271X	MG RESISTOR,S9500EH	270Ω,1/10W
R6704	NRSA02J-101X	MG RESISTOR,S9500EH	100Ω,1/10W
	NRSA02J-152X	MG RESISTOR,S9500E	1.5kΩ,1/10W
R6705	NRSA02J-331X	MG RESISTOR,S9500E	330Ω,1/10W
	NRSA02J-472X	MG RESISTOR,S9500EH	4.7kΩ,1/10W
R6706	NRSA02J-101X	MG RESISTOR,S9500E	100Ω,1/10W
	NRSA02J-392X	MG RESISTOR,S9500EH	3.9kΩ,1/10W
R6707	NRSA02J-101X	MG RESISTOR,S9500E	100Ω,1/10W
	NRSA02J-470X	MG RESISTOR,S9500EH	47Ω,1/10W
R6708	NRSA02J-102X	MG RESISTOR,S9500EH	1kΩ,1/10W
	NRSA02J-103X	MG RESISTOR,S9500E	10kΩ,1/10W
R6709	NRSA02J-271X	MG RESISTOR,S9500EH	270Ω,1/10W
	NRSA02J-392X	MG RESISTOR,S9500E	3.9kΩ,1/10W
R6710	NRSA02J-102X	MG RESISTOR,S9500E	1kΩ,1/10W
	NRSA02J-151X	MG RESISTOR,S9500EH	150Ω,1/10W
R6711	NRSA02J-392X	MG RESISTOR,S9500E	3.9kΩ,1/10W
R6712	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R6713	NRSA02J-103X	MG RESISTOR,S9500EH	10kΩ,1/10W
	NRSA02J-273X	MG RESISTOR,S9500E	27kΩ,1/10W
R6714	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R6715	NRSA02J-223X	MG RESISTOR,S9500EH	22kΩ,1/10W
R6716	NRSA02J-102X	MG RESISTOR,S9500EH	1kΩ,1/10W
R6717	NRSA02J-223X	MG RESISTOR,S9500EH	22kΩ,1/10W
R6718	NRSA02J-684X	MG RESISTOR,S9500EH	680kΩ,1/10W
VR6701	QVZ3521-222Z	V RESISTOR,SEPARATION1,S9500E	
C6701	QEKJ1CM-106	E CAPACITOR,S9500E	10μF,16V
C6702	NCB21HK-103X	CAPACITOR,S9500E	0.01μF,50V
C6703	QEKJ1CM-336	E CAPACITOR,S9500EH	33μF,16V
	QEKJ1HM-225	E CAPACITOR,S9500E	2.2μF,50V
C6704	QEKJ1CM-107	E CAPACITOR,S9500EH	100μF,16V
	QEKJ1HM-225	E CAPACITOR,S9500E	2.2μF,50V
C6705	NCB21HK-103X	CAPACITOR,S9500EH	0.01μF,50V
	QEKJ1HM-225	E CAPACITOR,S9500E	2.2μF,50V
C6706	NCB21HK-103X	CAPACITOR,S9500E	0.01μF,50V
	NCB21HK-223X	CAPACITOR,S9500EH	0.022μF,50V
C6707	NCB21HK-103X	CAPACITOR,S9500EH	0.01μF,50V
	NDC21HJ-101X	CAPACITOR,S9500E	100pF,50V
C6708	NCB21HK-103X	CAPACITOR,S9500EH	0.01μF,50V
	NDC21HJ-101X	CAPACITOR,S9500E	100pF,50V
C6709	QEKJ1CM-106	E CAPACITOR,S9500E	10μF,16V
	QEKJ1CM-336	E CAPACITOR,S9500EH	33μF,16V
C6710	NCB21HK-103X	CAPACITOR,S9500E	0.01μF,50V
	NCB21HK-682X	CAPACITOR,S9500EH	0.0068μF,50V
C6711	NCB21HK-103X	CAPACITOR,S9500E	0.01μF,50V
	NCB21HK-682X	CAPACITOR,S9500EH	0.0068μF,50V
C6712	NCB21HK-103X	CAPACITOR,S9500E	0.01μF,50V
	QEKJ1HM-225	E CAPACITOR,S9500EH	2.2μF,50V
C6713	QEKJ1CM-106	E CAPACITOR,S9500E	10μF,16V
	QEKJ1HM-225	E CAPACITOR,S9500EH	2.2μF,50V
C6714	QEKJ1CM-106	E CAPACITOR,S9500E	10μF,16V
	NCF21CZ-224X	CAPACITOR,S9500EH	0.22μF,16V
C6715	QEKJ1CM-106	E CAPACITOR,S9500E	10μF,16V
C6716	NCB21HK-103X	CAPACITOR,S9500E	0.01μF,50V
C6717	NCB21HK-223X	CAPACITOR,S9500EH	0.022μF,50V
	QEKJ1HM-104	E CAPACITOR,S9500E	0.1μF,50V
C6718	NDC21HJ-181X	CAPACITOR,S9500E	180pF,50V
	QEKJ1CM-336	E CAPACITOR,S9500EH	33μF,16V
C6719	QEKJ1CM-106	E CAPACITOR,S9500EH	10μF,16V
	QEKJ1CM-336	E CAPACITOR,S9500E	33μF,16V

#	△	REF No.	PART No.	PART NAME, DESCRIPTION	
C6720			QEKJ1CM-106	E CAPACITOR,S9500EH	10μF,16V
			QEKJ1HM-225	E CAPACITOR,S9500E	2.2μF,50V
C6721			NCB21HK-103X	CAPACITOR,S9500EH	0.01μF,50V
			QEKJ1HM-225	E CAPACITOR,S9500E	2.2μF,50V
C6722			QEKJ1CM-106	E CAPACITOR,S9500EH	10μF,16V
C6723			NCB21HK-103X	CAPACITOR,S9500EH	0.01μF,50V
C6727			NDC21HJ-470X	CAPACITOR,S9500EH	47pF,50V
C6728			NDC21HJ-470X	CAPACITOR,S9500EH	47pF,50V
C6729			NDC21HJ-8R0X	CAPACITOR,S9500EH	8pF,50V
C6730			NDC21HJ-1R0X	CAPACITOR,S9500EH	1pF,50V
L6701			QQL29BK-1R0Z	COIL	1μH
L6702			QQL29BJ-3R3Z	COIL,S9500EH	3.3μH
			QQL29BK-1R0Z	COIL,S9500E	1μH
L6703			QQL231J-680Y	COIL,S9500EH	68μH
L6704			QQL29BK-1R0Z	COIL,S9500EH	1μH
L6705			QQL231J-221Y	COIL,S9500EH	220μH
CF6701			PU52775-2	CERAMIC FILTER,S9500E	
CF6702			PU49295-2	N FILTER,S9500E	
LC6701			QQR0657-013	NOISE FILTER,S9500EH	
X6701			PEVB0479	CRYSTAL RESONATOR,S9500E	
			QAX0443-001	CRYSTAL RESONATOR,S9500EH	
T6701			QQR0583-001	LC FILTER,S9500E	
SD1			LP30478-001A	SHIELD CASE(DEMOD),S9500E	
BK1			LP40077-001A	BRACKET(BOARD),S9500EH	
CN6701			QGG2502K1-11	HEADER PIN,(1-11)MAIN	

SPATIALIZER BOARD ASSEMBLY <24>

PW1	LPA10022-01A	SPATIALIZER BOARD ASSY	
IC2701	AN7395S	IC	
Q2701	2SC4081/QRS/-X	TRANSISTOR	
D2701	MTZJ10B	ZENER DIODE	
R2701	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
R2702	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R2703	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
R2705	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R2706	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R2707	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R2708	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R2709	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
C2701	QEKJ1CM-106	E CAPACITOR	10μF,16V
C2702	QEKJ1CM-106	E CAPACITOR	10μF,16V
C2703	QEKJ0JM-226	E CAPACITOR	22μF,6.3V
C2704	QEKJ0JM-226	E CAPACITOR	22μF,6.3V
C2705	NCB21HK-563X	CAPACITOR	0.056μF,50V
C2706	NCB21HK-393X	CAPACITOR	0.039μF,50V
C2707	QEKJ1CM-106	E CAPACITOR	10μF,16V
C2708	QEKJ1CM-106	E CAPACITOR	10μF,16V
C2710	NCB21HK-103X	CAPACITOR	0.01μF,50V
C2711	NCB21HK-273X	CAPACITOR	0.027μF,50V
C2712	QEKJ1CM-106	E CAPACITOR	10μF,16V
C2713	QEKJ1CM-476	E CAPACITOR	47μF,16V
C2716	QEKJ1CM-476	E CAPACITOR	47μF,16V
CN2702	QGG2502K1-08	HEADER PIN,(1-8)MAIN	

#	△	REF No.	PART No.	PART NAME, DESCRIPTION	

SW/DISPLAY BOARD ASSEMBLY <28>

PW1	LPA10031-03B1	DISPLAY BOARD ASSY,S9500EH	
	LPA10031-05B1	DISPLAY BOARD ASSY,S9500E	
IC7001	M35500BFP	IC	
	or M35500BGP	IC	
	or M35500AGP	IC	
IC7002	PNA4652M00XB	IR DETECT UNIT	
	or GP1U281X	IR DETECT UNIT	
D7002	RD9.1ES/B2/-T2	ZENER DIODE	
	or UZ9.1BSB	ZENER DIODE	
	or MTZJ9.1B	ZENER DIODE	
D7004	1N4148M	DIODE	
	or 1SS133	DIODE	
D7005	1N4148M	DIODE	
	or 1SS133	DIODE	
D7009	SLR-342MC3F	LE DIODE	
D7010	SLR-342VC3F	LE DIODE	
R7001	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7002	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7003	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7004	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7005	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7006	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7007	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7008	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7010	QRE141J-153Y	RESISTOR,S9500EH	15kΩ,1/4W
R7012	QRE141J-153Y	RESISTOR	15kΩ,1/4W
R7013	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7014	QRE141J-470Y	RESISTOR	47Ω,1/4W
R7020	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7021	QRE141J-122Y	RESISTOR	1.2kΩ,1/4W
R7022	QRE141J-182Y	RESISTOR	1.8kΩ,1/4W
R7023	QRE141J-222Y	RESISTOR	2.2kΩ,1/4W
R7024	QRE141J-272Y	RESISTOR	2.7kΩ,1/4W
R7025	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
R7026	QRE141J-682Y	RESISTOR	6.8kΩ,1/4W
R7027	QRE141J-153Y	RESISTOR	15kΩ,1/4W
R7028	QRE141J-393Y	RESISTOR	39kΩ,1/4W
R7030	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7031	QRE141J-122Y	RESISTOR	1.2kΩ,1/4W
R7032	QRE141J-182Y	RESISTOR	1.8kΩ,1/4W
R7033	QRE141J-222Y	RESISTOR	2.2kΩ,1/4W
R7034	QRE141J-272Y	RESISTOR	2.7kΩ,1/4W
R7035	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
R7036	QRE141J-682Y	RESISTOR	6.8kΩ,1/4W
R7037	QRE141J-153Y	RESISTOR	15kΩ,1/4W
R7038	QRE141J-393Y	RESISTOR	39kΩ,1/4W
R7040	QRE141J-331Y	RESISTOR	330Ω,1/4W
R7041	QRE141J-331Y	RESISTOR	330Ω,1/4W
R7050	QRE141J-393Y	RESISTOR	39kΩ,1/4W
C7001	QDVB1EZ-223Y	CAPACITOR	0.022μF,25V
C7002	QETC1HM-106	E CAPACITOR	10μF,50V
C7007	QEKCOJM-476	E CAPACITOR	47μF,6.3V
C7009	QCSB1HJ-150	CAPACITOR	15pF,50V
C7010	QCFC1HZ-104	CAPACITOR	0.1μF,50V
C7011	QETCOJM-337	E CAPACITOR	330μF,6.3V

#	△ REF No.	PART No.	PART NAME, DESCRIPTION
C7019		QDVB1EZ-223Y	CAPACITOR 0.022μF,25V
C7192		QCBB1HJ-681	CAPACITOR 680pF,50V
C7194		QCBB1HJ-681	CAPACITOR 680pF,50V
L7191		QRE141J-101Y	RESISTOR 100Ω,1/4W
L7192		QRE141J-101Y	RESISTOR 100Ω,1/4W
S7001		QSW0456-002Z	TACT SWITCH,POWER
S7002		QSW0456-002Z	TACT SWITCH,CH+
S7003		QSW0456-002Z	TACT SWITCH,CH-
S7004		QSW0456-002Z	TACT SWITCH,REC
S7005		QSW0456-002Z	TACT SWITCH,PAUSE
S7006		QSW0456-002Z	TACT SWITCH,PLAY
S7007		QSW0456-002Z	TACT SWITCH,STOP/EJECT
S7008		QSW0456-002Z	TACT SWITCH,FF
S7009		QSW0456-002Z	TACT SWITCH,REW
S7011		QSW0456-002Z	TACT SWITCH,SPATIALIZER
S7012		QSW0456-002Z	TACT SWITCH,INSERT
S7013		QSW0456-002Z	TACT SWITCH,ST BOX
S7014		QSW0456-002Z	TACT SWITCH,TBC
S7015		QSW0456-002Z	TACT SWITCH,A.DUB
DI7001		QLF0032-002	FL TUBE
HD1		LP30428-001A	FDP HOLDER(L),DI7001
HD2		LP30429-001A	FDP HOLDER(R),DI7001
HD3		PQM30038-6	LED HOLDER,D7009
HD4		PQM30038-6	LED HOLDER,D7010
FW7001		PW30101-60AA442	PARALLEL WIRE
CN7001		QGF1207C1-12	FPC CONNECTOR,(1-12)MAIN

REC SAFETY BOARD ASSEMBLY <32>

PW2	LPA10031-01B2	REC SAFETY BOARD ASSY
S7041	QSW0602-002	PUSH SWITCH

JACK BOARD ASSEMBLY <36>

PW3	LPA10031-01B3	JACK BOARD ASSY
R7192	QRE141J-0R0Y	RESISTOR 0Ω,1/4W
C7192	QCBB1HJ-681	CAPACITOR 680pF,50V
C7194	QCBB1HJ-681	CAPACITOR 680pF,50V
L7191	QRE141J-101Y	RESISTOR 100Ω,1/4W
L7192	QRE141J-101Y	RESISTOR 100Ω,1/4W
J7191	PEMC1126	PIN JACK,VIDEO IN
J7192	PEMC0922	PIN JACK(SW),VIDEO IN
J7193	PEMC0922	PIN JACK(SW),AUDIO(L)IN
J7194	QND0010-001	S JACK,S IN
CN7191	QGF1207F1-05	FPC CONNECTOR,(1-5)MAIN
CN7192	QGF1207F1-04	FPC CONNECTOR,(1-4)TERMINAL

△ REF No. PART No. PART NAME, DESCRIPTION

LOADING MOTOR BOARD ASSEMBLY <55>

PW2	LPA10010-01A2	LOADING MOTOR BOARD ASSY
CN1	QGB2533K1-02	CONNECTOR

VSC BOARD ASSEMBLY <72>

PW1	PB10995C	VSC BOARD ASSY
IC2501	LC85405E	IC
	or LC85405NE	IC
Q2501	2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
Q2502	UN521E	TRANSISTOR
	or RN1309	TRANSISTOR
	or DTC144WU	TRANSISTOR
D2501	1N4148M	DIODE
	or 1SS133	DIODE
R2501	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
R2502	NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W
R2503	NRSA02J-104X	MG RESISTOR 100kΩ,1/10W
R2504	NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W
R2505	NRSA02J-105X	MG RESISTOR 1MΩ,1/10W
R2506	NRSA02J-473X	MG RESISTOR 47kΩ,1/10W
R2507	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
R2508	NRSA02J-333X	MG RESISTOR 33kΩ,1/10W
R2509	NRSA02J-103X	MG RESISTOR 10kΩ,1/10W
R2510	NRSA02J-104X	MG RESISTOR 100kΩ,1/10W
R2511	NRSA02J-154X	MG RESISTOR 150kΩ,1/10W
R2512	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
R2513	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
R2514	NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W
R2515	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
R2516	NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W
R2518	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
R2519	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W
R2520	NRSA02J-101X	MG RESISTOR 100Ω,1/10W
R2521	NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W
R2522	NRSA02J-682X	MG RESISTOR 6.8kΩ,1/10W
C2501	QEKJ0JM-107	E CAPACITOR 100μF,6.3V
C2502	NCB21HK-562X	CAPACITOR 0.0056μF,50V
C2503	QEKJ1HM-105	E CAPACITOR 1μF,50V
C2505	QEKJ0JM-107	E CAPACITOR 100μF,6.3V
C2506	NCB21HK-103X	CAPACITOR 0.01μF,50V
C2507	QEKJ1CM-226	E CAPACITOR 22μF,16V
C2508	NCB21HK-103X	CAPACITOR 0.01μF,50V
C2509	QEKJ1CM-106	E CAPACITOR 10μF,16V
C2510	QEKJ1CM-476	E CAPACITOR 47μF,16V
C2511	NCB21HK-222X	CAPACITOR 0.0022μF,50V
C2512	NDC21HJ-331X	CAPACITOR 330pF,50V
C2513	NCB21HK-103X	CAPACITOR 0.01μF,50V
C2518	NCB21HK-102X	CAPACITOR 0.001μF,50V
C2519	NCB21HK-103X	CAPACITOR 0.01μF,50V
L2501	QQL242J-2R2Z	COIL 2.2μH

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
LPF2501			PELN1137	LOW PASS FILTER
CF2501			QAX0399-001Z	RESONATOR
LC2501			QQL29BJ-470Z	COIL
CN2501			QGG2502K1-09	HEADER PIN,(1-9)MAIN

#	△	REF No.	PART No.	PART NAME, DESCRIPTION
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DD SLOW BOARD ASSEMBLY <78>

PW2	LPA10016-01A2	DD SLOW BOARD ASSY	
IC4101	BA10324AF-XE	IC	
	or UPC324G	IC	
IC4102	TC4S30F	IC	
IC4103	BU4066BCF	IC	
Q4101	UN521E	TRANSISTOR	
	or DTC144WU	TRANSISTOR	
	or RN1309	TRANSISTOR	
Q4102	UN521E	TRANSISTOR	
	or RN1309	TRANSISTOR	
	or DTC144WU	TRANSISTOR	
D4101	DA204U	DIODE	
D4103	DAN202U	DIODE	
D4104	1SS133	DIODE	
	or 1N4148M	DIODE	
D4105	1SS133	DIODE	
	or 1N4148M	DIODE	
R4101	NRSA02J-105X	MG RESISTOR	1MΩ, 1/10W
R4102	NRSA02J-224X	MG RESISTOR	220kΩ, 1/10W
R4103	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
R4104	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
R4105	NRSA02J-104X	MG RESISTOR	100kΩ, 1/10W
R4106	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
R4107	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
R4108	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
R4109	NRSA02J-0R0X	MG RESISTOR	0Ω, 1/10W
R4110	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
R4114	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
R4115	NRSA02J-103X	MG RESISTOR	10kΩ, 1/10W
C4101	NCB21CK-224X	CAPACITOR	0.22μF, 16V
C4102	QERF1CM-106	E CAPACITOR	10μF, 16V
C4103	NCB21HK-103X	CAPACITOR	0.01μF, 50V
C4105	NCB21EK-563X	CAPACITOR	0.056μF, 25V
CN4101	QGB2530J1-12	CONNECTOR,(1-12)MAIN	

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